Not Man Apart

Friends of the Earth
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NEWS

NOT MAN APART

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California Sets Tougher Pesticide Regulations

UNHAPPY FARMERS BLOCK FUNDS

California State Resources Secretary Huey Johnson took an important first step toward better management of pesticide use in California when he approved the state Food and Agriculture Department's new pesticide regulations in January. At the same time, Johnson said he considered the department's regulations partially deficient, a view strongly echoed by Friends of the Earth and other environmentalist groups. To further complicate matters, farmers, unhappy with the new regulations, persuaded key legislators to withhold funding necessary for the new regulations' enactment.

California's productive farmland is treated with about 300 million pounds of pesticides each year, or about ten pounds for each person in the state. The problems which attend pesticide use—worker poisonings, toxic residues on foods, and soil degeneration due to the killing off of beneficial insect colonies—made it essential that the state improve its control over pesticide use.

Among the practical effects of the new regulations are:

- Agricultural companies will have to undergo a tougher process to get their pesticides registered;
- These companies will have to provide *all* adverse risk data on products that have been registered in California;
- Farmers will have to prove to their county agriculture commissioners that they explored all alternatives before deciding to use pesticides;
- County commissioners will be expected to monitor pesticide use more closely;
- Farmers will have to obtain seasonal permits for pesticide use and notify their county commissioners each time they use them, and;
- Citizens will have some means to enforce adherence to the rules.

The Food and Agriculture Department submitted the proposed regulations to Johnson for his certification—a decision that the regulations fulfilled the requirements of the California Environmental Quality Act (CEQA). Certification by the Resources Secretary enables farmers to skip filing environmental impact reports each time they use pesticides. Johnson's approval means he considers the regulations adequate to ensure compliance with CEQA.

In announcing his approval, Johnson addressed some environmentalists' concerns. One of FOE's objections to the new regulations is that they do nothing to prohibit pesticide salesmen from being pesticide advisors. Johnson compared the situation to that "where a physician diagnoses the disease and then sells the patient the cure. The temptation is very great that the physician will overprescribe." Johnson made it clear he thought the problem should be resolved, but took no concrete action.

Johnson gave his qualified approval under substantial political pressure. At the hearings on the regulations held in mid-December, farmers and chemical industry representatives argued forcefully that the regulations were too restrictive. Environmentalists and consumer and labor leaders were equally dissatisfied, calling the regulations vague and inadequate.

If Johnson had not approved the regulations, the decision would have been up to

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Congress Skeptical Of MX Racetrack

BUT REJECT ALTERNATIVES

Planning for the MX missle project appears to be preceeding, despite temporary confusion in the Air Force and elsewhere owing to the collapse of the SALT II treaty. Some recent MX developments include:

- Considerable congressional skepticism over the "racetrack" scheme has surfaced. Late in the fall, an amendment by Senator Ted Stevens (R-Alaska), requesting the Air Force not to commit the US to the racetrack system, passed the Senate 89-0; it passed the House as well. Congress is still solidly behind the MX itself, however, and since it is unlikely that a less objectionable basing mode will be found (the Air Force has already explored and discarded most of the alternatives), it seems that the racetrack concept probably will survive.
- A "fast-track" bill is likely. If construction is to start in 1982, as planned, the Air Force will have to push a bill through Congress waiving or expediting many environmental and land-withdrawal requirements. This bill, "The MX Missle System Basing Act," has already gone through 24 drafts, and may be brought up

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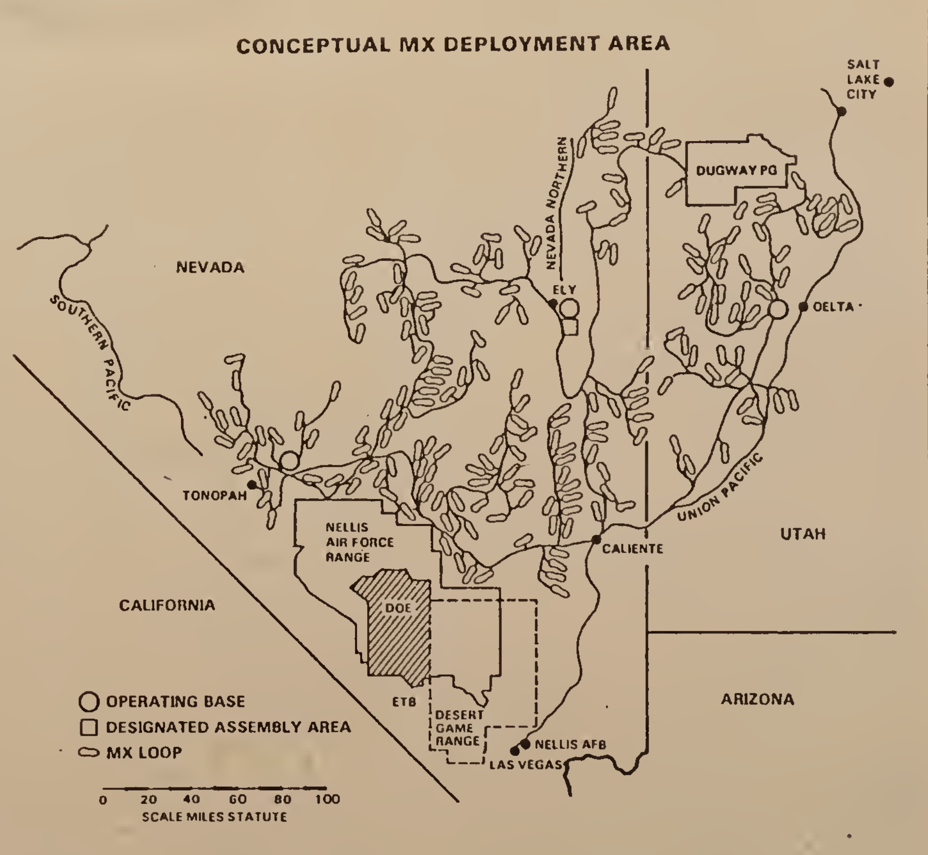

The Air Force map shows 180 "racetracks" of the MX mobile missile system, spread across the Nevada and Utah desert.

Congress Pulls FTC Teeth

Regulatory Bodies Under Heavy Fire

Now that some of the more stringent environmental legislation earned by citizen activists in the '60s and '70s is being slowly embodied in regulations, corporate interests have launched a well coordinated and expensive anti-regulatory lobbying campaign against environmental, health, and other regulations. This campaign recently focused on the Federal Trade Commission (FTC), responsible for protecting the public from businesses that engage in unfair methods of competition as well as from marketplace fraud.

Regulatory reform is the general term for a wide range of proposals usually sponsored by those who would like to see less governmental regulation of their interests. Often cloaked in rhetoric espousing such laudable goals as reducing inflation and governmental interference, reform proposals are beginning to reach beyond how agencies carry out their mandates to the very substance of the laws themselves. This may result in weakened standards, exempted industries or hazardous substances, and spineless agencies.

The current attack on the FTC provides the first glimpse of future battles over deregulation. During consideration of FTC's reauthorization legislation, the House voted overwhelmingly to end a four-year investigation into consumer abuses in the funeral industry. The House also gave Congress authority to veto final FTC rules by a majority vote of either house and failure of the other house to override that veto. The bill now in the Senate, S.1991, contains several additional restrictions on the regulatory process in such areas as unfair children's advertising and private standards setting. Up to 20 potentially crippling amendments await S.1991 when Senate floor action begins in late January or early February. Consumer strategists will try to keep the number of amendments to a minimum.

One bill may prohibit almost all safety inspections in most American workplaces

"I'm against things being regulated!"

More regulatory agencies may soon find themselves in a position similar to the FTC's, "like a raft surrounded by congressional sharks," in the words of one observer. The House attached a legislative veto to the Federal Insecticide, Fungicide, and Rodenticide Act—basic pesticides law—three separate times (none have taken effect, however). The recently introduced Occupational Safety and Health Administration (OSHA), Improvements Act of 1980, may wind up prohibiting almost all safety inspections in up to 90 percent of America's workplaces.

* What You Can Do: Write your Senators and urge them to oppose the provisions in S.1991 and any proposed amendments that would cripple the FTC. Watch for upcoming regulatory reform battles for the Environmental Protection Agency, OSHA, and other important agencies. For further information contact Brett Hill, Urban Environment Conference, 1302 18th Street, NW, Washington, DC 20036.

Brett Hill

California Pesticide Regulations
continued from page 1

the state legislature, where the pro-chemical farmer lobby could have further weakened the program. Many observers believe this may have had a substantial effect on Johnson's decision. In addition, the governor's office had let both the Department of Food and Agriculture and the Department of Resources know that Governor Jerry Brown didn't want any noisy interagency battles going on while he sought the presidency.

Farmers, generally unhappy with the new regulations, have temporarily blocked enactment of the rules. At their urging, the Joint Legislature Budget Committee withheld the $1.4 million necessary to support the program until July. When asked if the farmers could further delay activation of the regulations, Johnson replied, "If the public cares, they better make themselves heard. This is a political process."

* What You Can Do: California residents should write their representatives at the State Capitol, Sacramento, Calif. 95814, and let them know that they consider the regulations a good first step. Urge them to fight for an adequately funded program. Our health, the health of our field workers, and the continued productivity of our land depend on their, and your, support.

—*H.D.*

MX Scepticism
continued from page 1

in late February or early March.

- The Supreme Court refused to hear a case appealed by the Western Shoshone tribe concerning a 22-million-acre tract of Shoshone land in Nevada that lies in the proposed MX range. The Shoshones were trying to refuse a $26-million settlement of their land claim, but the courts ruled that an earlier acceptance of the government offer by a handful of Shoshones finished the matter.
- The Department of Energy and the Department of Defense are cooking up a scheme to power the MX system with photovoltaic cells and windmills, perhaps to diffuse environmentalist opposition.

—*Steve Wheeler*

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from the Editor

The "Issue" Issue

Done any networking lately? Hopefully your space is meaningful and supportive. After all, the spokesperson for the chairperson has prioritized his/er data into a viable input parameter; functionalizing all of the options that impact on the present interface.

Where does language like that come from? Sometimes I think it's code, meant to disguise the true meaning from a casual listener ("they were out in the meadow networking away like rabbits"). Other times I think it's some wierd cult that wants to destroy the beauty of the language (on a ten-point scale of ugly, "chairperson" ranks a solid twelve, face it).

But mostly I think it's a peculiar kind of laziness, mixed with a fair measure of bureaucratic obfucation, topped off with the numbing, homogenizing effect of the tube.

The word that bugs me most these days is "issue," not when it means matter of controversy or one particular edition of a periodical. What bothers me is the tacking-on of "issue" to certain words, pushing them from thing to abstraction. Nuclear power changes from an energy source to a political abstraction, "the nuclear issue." A couple of years ago, I heard a colleague say, "Alaska is a metaphor." I wanted to leap up and scream, "no, dammit, Alaska is a place, a collection of mountains and rivers and bears and moose and people. Call it a metaphor and you drain the life out of it." Now this person would no doubt refer not to Alaska but to the "Alaska issue."

I suggest this is more than just language purism—it is a fear of something that is downright dangerous. I suspect utilities, oil companies, chemical manufacturers refer to and think about the environment that way: "The air issue," I can just hear them saying, "is something we've got to deal with before we'll get a permit for our big new power plant." Air ceases to be something people and animals need to breathe every ten seconds or so and becomes a political problem best solved by lobbyists and public relations departments.

We environmentalists run the same risk. When the condor ceases to be a bird, severely threatened by encroachment on its habitat, and becomes instead a lifeless "issue," it becomes all too easy to reach compromises you never would if you could sit down and look that "issue" in its eye. When nuclear power becomes the nuclear issue, it joins the long string of other issues we can't keep track of, just another thing to worry vaguely about.

—*T.T.*

Plan to Dump NYC's Radiological Chief

SOLON TOO SUCCESSFUL IN HEALTH PROTECTION

An internal memo from the New York State Health Department to Governor Carey's counsel, Richard Brown, outlines plans to end local radiological control in New York City and centralize all radiological activities in a new state agency.

FOE's Mid-Atlantic Representative, Lorna Salzman, termed the move "politically motivated" and said, "This is a poorly disguised move to abolish the city's Bureau for Radiation Control and its effective director, Dr. Leonard Solon, whose capable direction has made the bureau respected nationwide as a leader in radiological health protection, while being a thorn in the side of the radiological establishment."

Under Dr. Solon's leadership, the Bureau for Radiation Control has restricted high-level radioactive waste transport through densely populated New York City. Dr. Solon has proposed reducing public exposure standards to microwave radiation, and under his recommendation, the Board of Health recently voted to set up a registration and fee schedule for x-ray machines to use fees to pay for machine inspections.

Dr. Solon's activities have aroused the anger of many powerful forces in the city: Columbia University (which was denied a health permit for its research reactor), Brookhaven National Laboratories on Island, and the Health Commissioner's pro-nuclear advisory task force, among others.

Under the plan, Solon would go. John Matuszek, currently in the State Health Department, would head the new state agency. Salzman expressed concern about the type of leadership Matuszek would provide, recalling the lengthy contact FOE had with him during the Chinese nuclear weapons fallout crisis in the Northeast in October 1976. Matuszek had flatly stated that there would be no harm to the public from the iodine-131 that found its way into milk supplies at that time. He could have suggested the public take protective action by drinking powdered milk instead of fresh. A simple act, this would have protected many from radiation exposure.

Salzman noted that the state has consistently downplayed radiation leakages and accidents at facilities such as Nuclear Fuel Services at West Valley, New York, and Brookhaven National Laboratories on Long Island. Brookhaven habitually leaks fission products into the Peconic River which is used heavily for fishing by local people.

If the plan, now in the form of legislative memo H.D.3-80, is to be enacted, it will be submitted first to the state legislature as part of Governor Carey's annual legislative package.

FOE has sent a mailgram to Governor Carey, with copies to Mayor Koch of New York City; Carol Bellamy, head of the City Council; David Axelrod, state Health Commissioner; and Rinaldo Ferrer, New York City Health Commissioner, urging them to abandon the proposal. Many state legislators from New York City have already voiced opposition to the plan.

*What You Can Do: FOE members in New York can help direct the course of the coming battle by writing letters to Governor Carey at the State Capitol, Albany, New York, 12224. —*H.D.*

Experts Agree On Effects of CO_2

The National Academy of Sciences published a report in December that confirms the findings of an increasing number of scientists: that the build-up of carbon dioxide in the atmosphere will bring about climatic changes and increased global temperatures.

The report states:

> We now have incontrovertible evidence that the atmosphere is indeed changing and that we ourselves contribute to that change. Atmospheric concentrations of carbon dioxide are steadily increasing, and these changes are linked with man's use of fossil fuels and exploitation of the land. Since carbon dioxide plays a significant role in the heat budget of the atmosphere, it is reasonable to suppose that continued increases would affect climate.

Work done by Gordon MacDonald, George Woodwell, and others (NMA, September 1979) this summer concluded that if CO_2 continues to increase in the atmosphere at the current rate of 4.3 percent per year, then we will experience a temperature increase of about 3° C sometime in the first half of the next century. These results were received with a mixed degree of alarm and skepticism and prompted the President's science advisor, Frank Press, to request the review by the Academy.

The survey group, headed by Jule Charney of MIT, concluded:

> . . .we have tried but have been unable to find any overlooked or underestimated physical effects that could reduce the currently estimated global warmings due to a doubling of atmospheric CO_2 to negligible proportions or reverse them altogether.

It is imperative that Congress and the Administration begin to address the impacts of the CO_2 increase. As indicated by the Academy review, "A wait-and-see policy may mean waiting until it is too late."

For further information see the June 1979 issue of NMA.

—*Linda Haverfield*

TVA's Quack Dam On the Duck River

In the wake of congressional approval of the Tellico Dam project, the Tennessee Valley Authority (TVA) is now attempting to proceed with construction of the Columbia Dam on the Duck River in Tennessee.

According to a bulletin put out by the Tennessee Scenic Rivers Association, the proposed dam would provide "no benefits for navigation, electrical power generation, recreation or flood control, while the land acquisition required would displace 326 families, as well as churches, schools, cemeteries, stores, and archaeological sites."

At an esrimated cost of $180 million,

CONSTITUTIONAL DRIVE IN CALIFORNIA

AT A TIME when many of its enemies are pronouncing the environmental movement either dead or reduced to defending the gains of past decades, a coalition of citizens' organizations has launched a bold campaign to write a statement of basic goals and principles—an "environmental bill of rights"—into the California State Constitution.

The initiative movement, led by retired state senator Peter Behr and Friends of the Earth founder David Brower, proposes that people of California have an inalienable right to a "healthful and productive environment." If the voters in the November 1980 election approve the initiative, this will be added to such fundamental constitutional rights as defending life and liberty; posessing property; and pursuing safety, happiness, and privacy.

"We don't assume that environmental quality will be suddenly attained when it becomes constitutionally guaranteed," says Behr, "but the initiative will provide a needed legal foundation for such efforts, and will demonstrate to public officials the will of the California public. We must move decisively to conserve our natural resources and decontaminate our environment. In the end, this is the only economical solution."

Although the initiative represents a strong effort to put California in the leadership of a new decade of environmental activism, the idea of such guarantees is not new: more than a dozen other states have already given constitutional status to basic environmental protection goals.

FOE members in California can help in the drive to get the initiative before the voters. Petitions to get the initiative on the ballet will be mailed to California members in February. Read the initiative (text follows) and circulate those petitions. If you have any questions, contact:

ALLIANCE FOR A HEALTHFUL AND PRODUCTIVE CALIFORNIA
717 K St., Suite 209
Sacramento, Calif. 95814
(916) 444-8727

Environmental "Bill of Rights" Initiative

Section 1. INALIENABLE RIGHTS

(Note: **Bold** words in Section 1 are **additions** to the **existing** "Inalienable Rights" provisions in the State Constitution.)

All people are by nature free and independent and have inalienable rights. Among these are enjoying and defending life and liberty, acquiring, possessing, protecting, **and conserving** property, and pursuing and obtaining safety, happiness, privacy, **and a healthful and productive environment.**

Section 28. RIGHT TO A HEALTHFUL AND PRODUCTIVE ENVIRONMENT

(a) **Rights**

The people have a right to a healthful and productive environmenr. Such right includes, but is not limited to, the benefits and enjoyment of:

1. Clean air in urban centers, industrial and agricultural work places, and elsewhere throughout the state;
2. Adequate amounts of water, unpolluted by toxic wastes or excessive sediments, in streams, rivers, lakes, underground basins, and coasral areas;
3. Renewable, safe, and non-wasteful energy sysrems;
4. Freedom from involuntary exposure to chemicals, minerals, radioactive substances and energy forms that are hazardous to health;
5. Livable urban and rural environments, with productive employmenr, affordable housing, efficient transportation, and freedom from excessive noise;
6. Accessible parks, recreational areas, and open spaces;
7. Agricultural lands protected from urban or suburban sprawl;
8. Unique and scenic resources, including wilderness and coastal areas, freeflowing rivers, lakes, mountains, deserts, forests, historic structures and archaeological sites;
9. Fish and wildlife populations, rare and endangered flora and fauna, and other native plant and animal life, protected and enhanced where possible;
10. A population level compatible with a good standard of living.

(b) **Implementation**

The legislature and all agencies of government, federal, state, regional and local, except where explicitly prohibited from so acting by federal law, shall implement the right guaranteed herein as follows:

(1) **Renewable and Recyclable Resources** — Use and invest in renewable, recyclable, or reclaimable energy, water, timber, and mineral resources in preference to virgin or non-renewable resources;

(2) **Resources Conservation** — Manage and value natural resources, including energy, water, timber, and minerals in such a way as to minimize waste and sustain productive natural and economic systems;

(3) **Toxic Substances** — Replace roxic methods or substances with non-toxic or less toxic methods or substances whenever they can reasonably serve the same purpose;

(4) **Planning** — Avoid unnecessary long-range costs through comprehensive land use and other planning which coordinates and harmonizes rhe efforts of individual agencies;

(5) **Informing the Public** — Compile and make readily available to the public accurate inventories of natural resource reserves, toxic and hazardous wastes, pollution levels, land use, and other basic resource information;

(6) **Economic Incentives and Government Regulation** — Where feasible, use economic incentives and disincentives, rather than governmental regulation, to achieve a healthful and productive environment. When regulations are required, they shall be concise and simply worded, and shall minimize procedural delay and government intrusion into the lives of the people;

Nothing contained in this subsection shall be consrrued as exclusive of other laws, regulations, or policies needed to implement the people's right to a healthful and productive environment.

(c) **Prohibition**

No laws shall be enacted, or regulations adopted, which unreasonably impair the right of the people to a healthful and productive environment as defined and implemented herein.

(d) **Enforcement**

Subject to reasonable limiration and regulation by law, this section shall be enforceable through appropriate legal proceedings on or after January 1, 1982.

the Columbia Dam, if built, would cause the flooding of 24,000 acres of wildlife habitat and place in jeopardy seven species of mussels listed as endangered, six species of snails being considered for listing, and two species of fish on Tennessee's endangered list.

In addition to projected agricultural losses in the region of $6.1 million annually, the proposed dam would drown a section of the scenic Duck River that attracts over 340,000 canoeists and canoe campers each year.

The TVA concedes that controlled releases from nearby Normandy Dam could fully satisfy the demand for water at Columbia.

In order to begin construction of the Columbia Dam project, which involves the filling of wetlands and the transportation of dredging materials, the TVA must obtain a section 404 permit, which protects wetlands, from the Corps of Engineers, as required by the Federal Water Pollution Control Act. Public hearings were held on November 27, 1979, in connection with TVA's application for a section 404 permit. According to Frank Fly, Director of the Tennessee Scenic Rivers Association, "All the expert and layman testimony we could muster has been presented. Now we are playing the numbers game, and we need your help."

***What You Can Do:** Write to Mr. John Case, Corps of Engineers, PO Box 1070, Nashville, Tennessee 37202, urging him to deny the TVA application for a section 404 permit. Without this permit construction of the dam cannot proceed.

—Paul Romano

New Jersey Study: Clean Air Saves Money

A study published by New Jersey shows that higher quality air resulting from implementation of clean air laws has saved lives and economically benefitted the state.

The Twelfth Annual Report of the New Jersey Economic Policy Council and the Office of Economic Policy includes a study of the relationship between air pollution and death rates. The council, made up of economists from Rutgers and Princeton universities and Wall Street who advise the state on economic issues, concluded that government mandated anti-pollution devices have saved over 2,000 lives per year in New Jersey alone.

The current energy crisis has led to calls for lowering air quality standards. Most of the reasoning relies on the often implicit assumption that air pollution is largely an esthetic or cosmetic problem (with a few exceptions, such as in Los Angeles during a smog alert). The money spent on antipollution equipment is said to mean fewer jobs, slower economic growth, and disabling restrictions on the utilization of America's coal—at a prohibitive cost to industry. However, when the council took a look at the expenses to industry vs. the profits of a lower death rate, the economic benefits to society outweighed the costs.

The study looked at the rate of change in mortality—the number of deaths—in New Jersey over a period of ten years and compared it to changes in total suspended particulates and sulfer dioxide in the air, using statistical methods developed at Rutgers University. The 2,017 lives estimated to have been saved in 1977 were judged worth between $166 million and $2.1 billion New Jersey industry spent about $85 million in 1977 on air pollution control.

The conservative valuation ($166 million) was based on "foregone earnings"—the amount of money a person would expect to earn during an average working life foregone by premature death. The intermediate valuation ($414 million) was arrived at by examining wage premiums—hazard pay—that are used to induce people to take dangerous jobs. The upper estimate ($2.1 billion) was calculated by using the value that workers attach to their own lives—about $1 million. None of these estimates took medical costs into account.

The council undertook the study to demonstrate the losses that would result from relaxation of air standards due to economic pressures. These standards have already been eased in some parts of New Jersey, where factories are burning oil and coal with higher sulfur content, and industry and business have urged further relaxation. The study is the first by an officially recognized group that quantitatively shows the benefits of cleaner air to a state. A study conducted by the council two years earlier had shown that New Jersey was at a disadvantage in cutting air pollution because costs in the state were higher than the national average.

The Economic Policy Council study was drawn from a larger one that included information on morbidity (incidence of disease) and property damage due to air pollution. (Joseph J. Seneca & Peter Asch, *The Benefits of Air Pollution Control in New Jersey*, Center for Coastal and Environmental Studies, Rutgers University, April 1979.)

—I.A.F.

Scientists Agree on Sea Turtle Conservation Plan

SIX OF SEVEN SPECIES ENDANGERED

More than 300 scientists, conservationists, government officials, and representatives of turtle products industries from 40 countries attended a world conference on Sea Turtle Conservation late November in Washington, DC.

The experts discussed the various threats to the seven sea turtle species, six of which are endangered. Nearly all sea turtle populations have been reduced by international and domestic trade in their leather, tortoiseshell, stuffed baby turtles, live eggs, and meat, as well as by habitat degradation from development and pollution.

Comparing the vulnerability of sea turtles to human exploitation, conferees agreed that, "Among other widely exploited marine species only the great whales, and possibly the sturgeons, show similar biological constraints on exploitation."

They agreed unanimously to begin implementation of a conservation strategy designed to "return sea turtles to former abundance while allowing controlled exploitation for the benefit of generations of humans yet to come."

The plan includes creation of protected habitat areas, such as national parks or reserves, elimination of the international trade in sea turtle products through domestic protection and management, ratification and enforcement of the Convention on International Trade in Endangered Species by the countries involved in the trade, experiments in controlled farming of sea turtles for food supplies, and several other conservation and research programs.

—E.S.

FOE Mexico Teaches Nutrition

SOYA AND SANDINISTAS A HEALTHY MIX

Los Amigos de la Tierra (Friends of the Earth)/Mexico (LAT) has started a project on nutrition and community development in Nicaragua. It involves organizing short practical workshops, mostly with women, on the introduction of a tropical hybrid of soybean into the diet and, at the same time, stimulating the use and understanding of this high-protein food. The LAT team will also teach soybean planting and harvesting techniques.

When the Sandinistas gained power in Managua, Dr. Arturo Aldama of Los Amigos de la Tierra requested permission from the new junta to do a series of food and nutrition workshops which had been successful in Mexico. Permission was granted and a team of LAT volunteers has gone to Nicaragua to start the project.

The project deals with agrarian and land reform, integration of women into the economic and political system, community involvement in decision-making, and sophisticated use of intermediate technology.

FOE/USA's international staff is organizing a fundraising campaign asking other FOE International (FOEI) groups to support this innovative effort. If successful, this will mark a new and creative type of cooperation by FOEI.

With funds raised, LAT volunteers in Nicaragua will buy soybeans, hand mills and kitchen utensils, and a transportation vehicle. None of the money will go to salaries or personal expenses in Nicaragua or here in the US.

If you would like to make a tax-deductible contribution toward the FOE/Los Amigos de la Tierra Nicaraguan project, please send a check payable to the Friends of the Earth Foundation/Nicaragua Fund, 124 Spear St., San Francisco, California 94105.

—Kathleen Bartoloni

Making soybean cakes at FOE Mexico workshop. Photo courtesy Los Amigos de la Tierra/Mexico.

Women, Food, and Shelter First

"People are happy to find how they can be useful, especially women. If women have something important to give and to do, then they have real influence, first in their families, and then in their communities."

So explained soft-spoken FOE Mexico worker, Dulce Aldama, to me in Cuernavaca, Mexico last August. We were discussing FOE Mexico's philosophy and strategy.

She informed me that FOE Mexico is organized in 377 groups of 25-30 women, mostly peasants, in the states of Hidalgo, Oaxaca, Queretaro, and Veracruz. The groups are grassroots efforts to provide "daily bread"; but the source of sustenance is not bread, but locally grown, collectively prepared, low energy, sustainable, and high-protein soybean cake and milk. Dr. Arturo Aldama, co-worker with Dulce, added that the women see their children's school results go up when they eat soy, a powerful motivation.

The Mexican government tried to promote a soybean nutritional strategy; the taste of soy is cited as the reason why soybean entrepreneurs failed. In the soy groups, however, taste is not an obstacle: "When people control the food they grow and eat, it tastes different—and better!" said a smiling Dulce.

While food is FOE Mexico's first priority, the group is also building a self-sufficient, low-cost "eco-housing" complex in northern Cuernavaca. The unit demonstrates that a convivial, thriving, productive living environment can be constructed with local labor and materials.

FOE Mexico has no formal membership, and charges no fee. "We charge commitment only," says Arturo. FOE Mexico is politically non-partisan. It is not, however, apolitical.

"Lack of food equals a lack of ideas," explains Arturo. "Food is an instrument to communicate with people. Eighty-five percent of Mexican prepared food, like Coca Cola additives, is produced by multinational companies," he added.

"In the end, people discover that most simple things like food and shelter are political."

—Peter Hayes

Foley Bill Gains 33 Cosponsors

The bill by Representative Tom Foley (D-Wash.) that would virtually wipe out much of the remaining *de facto* wilderness in the country has rounded up a scary 33 cosponsors. If your Representative is among them, please write and scold him (or her). If he or she does not appear in the list below, please write to say "thank you."

The cosponsors of H.R. 6070, as of January 10, are: Abdnor (R-S,D.), Alexander (D-Ark.), Anthony (D-Ark.), Bowen (D-Miss.), Burgener (R-Calif.), Chappell (D-Fla.), Clinger (R-Pa.), Coelho (D-Calif.), Dickinson (R-Ala.), Duncan (D-Ore.), Foley (D-Wash.), Huckaby (D-La.), Johnson (R-Colo.), Jones (D-Tenn.), Kramer (R-Colo.), Leach (D-La.), Lott (R-Miss.), Marriott (R-Utah), Mathis (D-Ga.), McCormack (D-Wash.), McKay (D-Utah), Montgomery (D-Miss.), Oberstar (D-Minn.), Perkins (D-Ken.), Regula (R-Ohio), Rhodes (R-Ariz.), Runnels (D-N.M.), Stump (D-Ariz.), Swift (D-Wash.), Simms (R-Ida.), Ullman (D-Ore.), Wampler (R-Va.), Young (R-Alaska). —*T.T.*

FOE IN THE FIELD

NMA introduces a new column this month. FOE in the Field will report the latest news and activities of our field representatives around the country.

New York

While Friends of the Earth New York continues its anti-Westway battle and bids a fond farewell to Francine Simring—recombinant DNA challenger *extraordinaire*—I, Lorna Salzman, FOE's Mid-Atlantic Representative, am working on the Army Corps of Engineers, freshwater wetlands developers, preservation of the Long Island pine barrens, and the poisoning by lethal pesticides of private drinking water wells on Long Island, as well as nuclear power.

The Swan Pond battle takes the lead now. FOE's efforts, spearheaded by attorney Richard Hartzman, persuaded the Army Corps to seek an injunction and civil penalties for the illegally filled wetlands in the Peconic River headwaters; FOE plans to join in the suit.

On eastern Long Island, the lethal pesticide Temik (aldecarb), used on potatoes, has been found in drinking water wells, many of which have been closed. FOE has requested the US Environmental Protection Agency (EPA) to ban use of Temik and to de-register it. EPA calls Temik "the most acutely toxic chemical" it has ever registered. FOE is distributing a Temik fact sheet in affected LI communities.

In New York City, FOE is organizing public opposition to proposed state legislation that would abolish the city's Bureau for Radiation Control. The draft law is a politically motivated attempt to get rid of the Bureau's effective director, Dr. Leonard Solon (see story on page 2), long a thorn in the side of the nuclear establishment since he succeeded in banning radioactive waste transport through the city.

As part of a coalition called the Shoreham Opponents Coalition (SOC), FOE will be filing for late intervenor status in the operating license proceedings on the Shoreham, LI, nuclear reactor.

Volunteer Phil Power, a Columbia University student, is putting together *Wetlands Watchdog*, a bulletin documenting the New York State Department of Environmental Conservation's abysmal failure to protect and preserve wetlands. It will contain brief chronologies of some of the worst cases and will be mailed to conservation groups, elected officials, and the press.

FOE New York needs funds for attorney Rick Hartzman to pursue the Swan Pond legal fight (send tax-deductible contributions to FOE NY, 72 Jane Street, New York, NY 10014, c/o Swan Pond Legal Fund). And FOE needs regular volunteers to work on New York area environmental issues. Contact Lorna Salzman, at the above address or call (212) 675-7173.

—*Lorna Salzman*

Portugal Sets Precedent

Ecological Constitution

Portugal has become the first country to include articles concerned with the quality of the environment in its constitution. Article 66 of the new constitution states:

"1. All men are entitled to enjoy and obliged to defend a healthy and ecologically balanced human environment.

2. Through its institutions or by soliciting community initiative, it is the duty of the Government to:

a) prevent and control pollution and the effects of pollution, as well as damaging forms of erosion;

b) institute land-use policies so as to insure a biologically balanced milieu;

c) create and develop natural parks and recreation areas in addition to classifying and protecting landscapes and sites in order to guarantee the conservation of nature and the preservation of cultural riches of an historic or artistic nature.

3. A citizen threatened or injured in the exercise of the right guaranteed under paragraph 1 is entitled by law to request the suspension of the violation and receive suitable compensation.

4. It is the obligation of the Government to progressively and increasingly improve the quality of life for all Portugese citizens."

Hats off to the Portugese! —*H.D.*

Suit Filed to Stop Superhighway Near Glacier Park

A lawsuit filed against the Montana Department of Highways to halt construction of a four-lane superhighway outside Glacier Park received an adverse ruling by federal district court on November 14, 1979.

The plaintiff, the Coalition for Canyon Preservation, filed suit because the agency's environmental impact statement lacks feasible alternatives to the construction plan. It also fails to take into account the severe ecological effects of the superhighway on the park, a World Biosphere—a designation which provides opportunities for ecological research and must be legally protected. (See NMA, October 1979.)

When studies totally lack data on significant impacts on air quality, secondary growth and pedestrian safety, "the adequacy of the EIS becomes a legal question," stated Steven J. Perlmutter, coalition lawyer and EIS specialist.

Federal Judge Russell Smith stated that the coalition had waited too long to file suit against the Department of Highways. The project was started ten years ago and approved by the Federal Highway Administration more than four years ago.

"As a matter of precedent, laches (waiting too long to bring suit) is not favored in environmental litigation. Ninety-five percent of National Environmental Policy Act (NEPA) cases deny laches when physical construction has yet to occur," said coalition coordinator, Sharlon Willows.

The construction would take place on a 10.8 mile section of Highway No. 2, now a two-lane highway inside Badrock Canyon, the geographic entrance to the Bioregion. The Bioregion includes Glacier Park as well as five other designated wilderness areas that contain critical habitat for two endangered species (bald eagle and northern rocky wolf) in addition to six threatened species.

"Massive cuts and fills, large cement drainage structures, and all other facets of a modern four-lane are incompatible with this locale," said Anthony Wayne Smith, National Parks and Conservation Association president.

A "Moderate Alternative" to the four-lane highway plan, proposed by the Coalition for Canyon Preservation, calls for improving the existing two lanes to make them safer, accommodate the number of visitors during tourist season, and perpetuate a slower-paced appreciation of the surrounding scenery.

The coalition was granted a temporary injunction on January 11. The injunction pending appeal prevents the Department of Highways from starting construction on the first half of the contested highway section closest to West Glacier. The coalition's motion for expedited appeal will be heard in March of this year.

* What You Can Do: Write a letter in support of the coalition's "Moderate Alternative" to the Highway Department's four-lane project to: Secretary of Transportation Neil Goldschmidt, 400 7th Street SW, Washington, DC 20024.

—*Angela Gennino*

All That Glitters

There's Gold Under Them Thar Hills

At $600 an ounce and still climbing, you'd think everyone would be hot to dig up any gold still resting quietly under hills and in streambeds. But no. Gary Snyder (a Pulitzer Prize-winning poet and member of FOE's Board) and a flock of his friends are trying to persuade the powers that be to keep hands off what the miners think may be a billion-dollar deposit of gold.

"It's not longhairs against growth," Snyder told the *San Francisco Chronicle*, "it's people trying to protect the rural lifestyle they choose. We should be looking at what we can put back into the earth, not what we can take out."

The gold in question is under San Juan Ridge, near Nevada City in Northern California. Ridge dwellers include about 300 people including Snyder, Allen Ginsberg, Swami Kriyananda's 175-member Ananda Cooperative Village, and, occasionally, Governor Jerry Brown.

The anti-mining forces' time seems to have almost run out. They have delayed the mining operations for a year and a half with a challenge to the environmental statement prepared by the miners, but recently a Superior Court judge dismissed the lawsuit. The San Juan Taxpayers Association, plaintiff in the case, has appealed to the State Court of Appeals and expects a decision within a few months. The Association alleges that the mining operation would pollute groundwater, among other problems.

But with the price of gold rising even faster than the price of oil, the odds against the preservationists must look awfully long. —*T.T.*

Couple Sues Met-Ed for Stillborn Child

A Manchester, Pennsylvania, couple is suing the owners of the Three Mile Island nuclear power plant, claiming that the accident on March 28, 1979, was responsible for the stillbirth of their daughter. Edward and Perri Klick, who live 3.2 miles from the power plant, charged in federal court that radiation released during the accident caused their child's death. They asked for damages of at least $10,000.

This suit is the first of its kind since the Three Mile Island accident. Other suits against the plant include one by the Susquehanna Valley Alliance for radioactive contamination of the Susquehanna River, a source of the area's drinking water.

The Klicks' suit charged that the defendants—Metropolitan Edison Company, operator and co-owner of the plant; General Public Utilities, Met-Ed's corporate parent; and Babcock & Wilcox, designer of the plant—"knew at the time of the nuclear leak that the high doses of radioactive gases would directly and adversely affect the vital organs of any child." It also charged that Met-Ed was negligent in not warning the couple of the danger.

"I called Met-Ed on the night of March 29," said Mrs. Klick, who was four months pregnant at the time, "and I was told I had not one single thing to worry about."

Although doctors did not find signs of radiation illness during an autopsy of the child, they could not determine any other cause of death.

"Everything within the child was normal," said Mrs. Klick, "but it all stopped at once." —*E.S.*

Skirmish on the Tallgrass Prairie

Kansas Power and Light may find it has unusual allies if its battle with landowners over the siting of the powerline it plans to run through northeastern Kansas continues. The National Audubon Society has threatened to sue the landowners if they are successful in forcing the power company to reroute the powerline through a proposed prairie parkland.

Kansas Power had originally planned to route the 345-kilovolt powerline through the proposed park, but was dissuaded by the Audubon Society and Save the Tallgrass Prairie, a group formed to push for the creation of the park. Kansas Power then set a new route which skirted the proposed park. At hearings held in early January, the farmers lobbied for reversion to the original route, hoping to degrade part of the proposed park site enough to weaken the chances for establishment of the park.

Before farmers brought it under the plow, the tallgrass prairie (so named for the four- to eight-foot tall grasses which characterized it) covered 400,000 square miles of the US's north and central plains. Only a few scattered remnants of this once enormous ecosystem remains (see *Not Man Apart*, August 1976; and *National Geographic*, January 1980). Saved by its rocky soil, the Flint Hills region in Kansas is the largest remaining unplowed area. Cattle graze here, keeping the grass short and displacing the once dominant species, but it is here that the greatest potential for the restoration of a prairie exists.

For years, conservationists have been trying to establish a tallgrass prairie reserve large enough to support something similar to the ecosystem of two centuries ago and have only recently come close to realizing that dream. Even though the park proposal as now formulated only involves land acquisition as privately held land is sold out of the family (a process which would take decades), the proposal is generating fierce local opposition. The federal government controls relatively little land in Kansas, and the ranchers like it that way. Park proponents are hoping to gain more local support for the park before starting the congressional hearings. NMA will keep you informed as events unfold.

—*H.D.*

EPA Requires Noise Rating

LOUDNESS LOSES ON LABELS

A program designed to provide consumers with information about the noise characteristics of new products through a labeling system has been established by the Environmental Protection Agency (EPA). The recently issued regulations set guidelines for rating and labeling both noisy products and those which claim to reduce noise.

The program establishes one type of label for products "capable of adversely affecting the public health or welfare," which will feature a prominent "Noise Rating." This rating is the number of decibels the product emits under EPA-designated conditions. The label will also indicate the range of decibels emitted by competing products. A lower rating will indicate a quieter product.

The EPA also set standards for a label for noise-reducing products. These will feature a "Noise Reduction Rating," indicating in decibels the noise-reducing capability of the product. This label will also indicate the effectiveness of competing products.

The first product to be affected by the new regulations are hearing protectors. These are often used in the home, but are especially important in the workplace, where they may provide critical protection from loud machinery. As of September 1980, all hearing protectors on sale will be required to bear the new labels. The EPA indicated it will require the labels on other products as the need is indicated. The EPA intends to emphasize labels on products used mainly around the home. —*H.D.*

Spain Objects, Peru Cheats, Says MAC

The Marine Action Centre reports that two of the new members of the International Whaling Commission (IWC) are performing very badly in their first year of membership:

Spain, which joined the Commission scant hours before the opening of the 1979 meeting, was awarded a courtesy quota of 143 fin whales (fin whales had been off limits in the waters in which Spain whales) for 1980. Spain promptly filed an objection, quite proper under the IWC rules, announcing that it disagreed with the quota and would not be bound by it.

Peru, another freshman member, has resumed whaling on sperm and Brydes whales, according to the *Lima Times* and to the manager of Peru's whaling station. This is in direct violation of the IWC schedule for 1979-80, which put the quota for sperm and Brydes whales in those waters at zero. One wonders why either country joined the IWC.

***What You Can Do:** 1) Write to Joan Jose Chao Tourino, Direction General de la Pesca, Ruiz Alarcon 1, Madrid 14, Spain, and to the Prime Minister, Adolpho Suarez, Primero Ministro, Plaza de Moncloa, Madrid, Spain; tell them what you think about their whaling policy. 2) Write to Philip Klutznick, Secretary, Department of Commerce, Washington, DC 20230, and ask him to investigate whether steps ought to be taken to bar Peruvian fishermen from American waters under provisions of the Packwood-Magnusen amendment. (This law gives the President discretionary authority to punish nations that fail to abide by international fishery conventions.) 3) Subscribe to the Marine Action Centre Newsletter; $10/year ($16 for organizations); MAC, 60 Metcalfe Road, Cambridge, England. —*T.T.*

Swedish Royalty To Flee Smog

Sweden's King Carl XVI Gustav, Queen Silvia, and their two children will be leaving their 600-room royal palace in Stockholm, opting instead for the cleaner air at their more modest country palace. The King and Queen are concerned that the foul air will be bad for their two children, two-year old Princess Victoria and the baby, Prince Carl Philip.

"Air measurements show that the thick traffic causes dangerous lead levels in the air at the courtyard which is the children's only green outdoor playground at the palace," a court spokeswoman said. Excursions to parks outside the palace grounds must be made secretly and have proven difficult.

The family's new quarters should be much better for the children. Drottningholm Palace was built in 1699 on Lake Maelar Island, modeled after Louis XIV's Versailles near Paris. Though Drottningholm has 380 fewer rooms for the children to run around in, that still leaves 220 rooms, plenty for most games. The palace is also surrounded by a large park. The family will move in next fall or winter after the place is thoroughly decorated. This leaves one to wonder how the rest of Stockholm's children are to get along. —*H.D.*

Goodbye BuRec, Hello WPRS

The Bureau of Reclamation is no more. In typical English, a press release addressed to "Friends of Reclamation" announces, "Due to changing program emphasis, the name Bureau of Reclamation has been changed to Water and Power Resources Service, effective November 6, 1979."

"Bureau of Reclamation," indeed, was an odd name for an agency that devoted too much of its efforts to drowning perfectly good rivers under often unnecessary dams. In fact, during the political wars over the proposal to hire BuRec to flood a goodly stretch of the Grand Canyon, one often heard, "that's Bureau of Reclamation, spelled with a W."

What can one say about the Water and Power Resources Services, apart from the fact that its initials sound like the call letters of a radio station? Let's just hope that it doesn't service what's left of our rivers the same way its predecessor did in its day.

—*T.T.*

BIG BUSINESS DAY LOOKS AT BUSINESS GOALS FOR 1980s

April is getting crowded. We already reported plans for a tenth birthday celebration of Earth Day. This comes on the 22. Now we get word of "Big Business Day," to be held on April 17. BB Day is sponsored by a string of people including Ralph Nader, John Kenneth Galbraith, Douglas Fraser of the United Auto Workers, Barry Commoner, and FOE's Dave Brower.

BB Day will provide a forum in which to explore the projected goals of big business in the 1980s and the implications for people and the environment. Knowledgable speakers will detail the growing trend in big business toward more monopoly, larger profits, and lower safety standards for workers, among other concerns.

The focus will be on how to fight back; "how to prevent big business from further undermining democracy, the quality of our lives and the integrity of our planet through the irresponsible pursuit of profits," according to the sponsors.

Legislation such as the Corporate Democracy Act of 1980, designed to make large corporations more accountable to consumers, workers, and local communities, will be explained and discussed. Proposals will be advanced calling for the formation of a public "Energy Corporation of America" intended to keep big oil honest.

To combat a profits-before-principles mentality we need information: How and for whom does big business operate? What are the socially and environmentally rational alternatives to multinational big business? Can big business be made responsive to public needs? Can we build a productive society in the 1980s dedicated to environmental conservation, intellectual growth, and social maturity, and yet achieve a materially high quality of life for people the world over?

If you are interested in organizing a Big Business Day in your community write, Big Business Day, Room 411, 1346 Connecticut Avenue, NW, Washington, DC 20036, or call (202) 861-0456.

—*Paul Romano*

SUNSPOT

Solar Community

Many communities around the country are developing solar energy for homes and not waiting for the government to take the initiative.

One of the most successful solar communities is Village Homes in Davis, California, where the houses use up to 80 percent less energy for heating and cooling than conventional houses. They accomplish most of their energy savings through "passive solar architecture" which uses the building itself as a collector, heating the interior by south-facing windows, and other non-mechanical means. Many homes also have solar water heaters.

The houses cost about $200-$2,000 more than traditional houses, but the extra cost will be paid back in only a few years, by savings in utility bills.

Sunlight for the solar systems is protected in the community by a rule that no homeowner can block sunlight from another home's solar systems.

Most of the homes are quite conventional in appearance (see drawing), demonstrating that a house need not look unusual to be an energy-efficient solar home. Village Homes' success has motivated its developers to plan a new, much larger solar community.

Other ecological features of the community are bike paths, garden and farming areas, and composting of organic wastes.

Studies Show Solar's Potential

Solar energy sources such as solar heating, wind power, and biomass fuels could provide about one-fourth of America's energy by the year 2000, according to several important new studies.

The presidential Domestic Policy Review of Solar Energy estimated that a strong federal solar program could economically provide 25-30 quads of energy per year, or 30 percent of US energy needs, by 2000 (a quad is equivalent to 500,000 barrels of oil a day for a year). The study recommended that, to achieve this goal, the federal government should give tax credits for passive solar homes and industrial solar heating, and provide low-interest loans for solar systems.

The Harvard Business School Energy Project recently published a well-researched study of the potential of energy conservation and solar measures. *Energy Future* (published by Random House, New York) found that a strong federal solar program could economically supply 25 percent of our energy by the year 2000. Authors Robert Stobaugh and Daniel Yergin state that a substantial shift of federal spending toward solar would help the economy, improve our balance of trade, create more jobs, help the environment, and strengthen national security. In testimony before the Senate, the authors said that a 60 percent solar tax credit would be economically justified in terms of benefits to the nation and past subsidies to other energy sources. They estimated that a $10-$15 billion investment in solar would yield the equivalent of 2 million barrels of oil a day, more than 20 percent of our present oil imports. The authors testified that we could save as much energy as the presidential synthetic fuels program's goal of 2.5 million barrels of oil a day, at a lower economic and environmental cost, by spending more money on solar and conservation.

A study by the Presidential Council on Environmental Quality, "Solar Energy: Progress and Promise," found that solar could economically produce 25 percent of our energy by the year 2000.

President Carter has set a goal of 20 quads (25 percent of US energy needs) to be supplied by solar energy by 2000. If this goal is to be realized, stronger solar programs than the current ones are needed.

For instance, the passage of the Solar Bank Bill, now before Congress, should not be delayed any longer. This would provide low-interest loans for consumers and businesses to buy solar equipment.

—Amy Pinkerton and Harvey Rose

SF Mayor Moves to Stop Tuolomne Dam Projects

San Francisco Mayor Dianne Feinstein has urged the city's Public Utilities Commission (PUC) to withdraw its application for three hydroelectric dam projects on the Tuolumne and Clavey Rivers outside Yosemite National Park. The projects are "fiscally unwise and too environmentally harmful," said Feinstein in a December 5 letter to the PUC, supporting the campaign to make the Tuolumne part of the national Wild and Scenic Rivers System.

"These dams are not vital to our city's energy future; whatever energy is needed can be provided by alternative sources of well-designed new power plants," said the mayor.

The dams were proposed three years ago by the city of San Francisco together with the irrigation districts of Modesto and Turlock to meet future urban peak power needs. The existing five dams on the Tuolumne and Clavey Rivers will not be enough, developers say, to meet those needs. However, conservationists and federal and state experts have stated that simple load management procedures (time-of-day pricing and cutting back on peak power supply in business settings) can keep the Tuolumne wild (see NMA, October 1979).

If built, the dams will still 50 major whitewater rapids, and much of the river's wildlife including trout and otter will disappear.

To prevent such a loss, President Carter recommended to Congress on October 2, 1979, (on the advice of the Secretaries of the Interior and Agriculture) that all eligible sections of the Tuolumne River be made part of the national Wild and Scenic Rivers System.

"Proponents of dams typically exaggerate benefits, underestimate costs, and ignore alternatives," said Laurie McCann, co-director of Friends of the River."

Feinstein said the cost of such a project "will be as high as $400 million resulting in only 400 million kilowatt hours per year of additional electricity supply. It would be a wiser financial course to modify and improve our existing hydroelectric facilities rather than build more dams which would have a minimal impact on our State's and City's energy requirements."

***What You Can Do:** The Tuolumne's nomination as a wild and scenic river is now pending in Congress. Write a letter in support of wild and scenic status for the Tuolumne to Representative Phil Burton, Federal Office Bldg., Room 11104, 450 Golden Gate Avenue, San Francisco, California 94104. Also send a note of thanks to Mayor Dianne Feinstein, Room 200, City Hall, San Francisco, California 94102.

—Angela Gennino

FOE WORKSHOP

If you've had a problem with a pesticide, or just want information, there is a toll-free number you can call. The Epidemiological Studies Program at Texas Tech University is acting as a national clearinghouse for pesticide information. If they can't tell you what you want to know, they know who—if anyone—can. The number is 800-531-7790 (or 800-292-7664 in Texas).

Protect our barrier islands. Representative Phil Burton (D-Calif.) introduced H.R. 5981, the Barrier Islands National Park Bill, in December, with 23 co-sponsors. The bill would create Barrier Island Units within the national park system. It would provide a long-range program for acquiring these undeveloped units, but in the meantime, it would prohibit federal funds from being spent or federal permits from being given for development within the units.

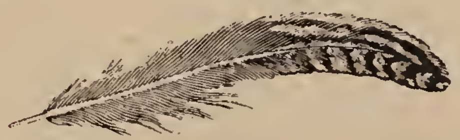
A map identifying the proposed units will be available by early February; it is expected to include most undeveloped barrier islands and undeveloped portions of barrier islands along the East Coast. Burton will hold hearings on the bill in February. H.R. 5981 needs strong public support if it is to pass. Write to your Representatives today and ask them to co-sponsor the bill. Also write to members of the House Interior Committee.

You can help stop the Peripheral Canal! Construction of California's much disputed 44-mile, $600 million canal, designed to transport up to 1 million acre-feet of water from the northern part of the state to the south, was approved by the Senate Finance Committee in the state legislature on January 7, 1980. But the battle is not over. If the bill, S.200, passes the Senate, the measure still has to be heard in the Assembly. In addition to the canal, the Senate bill, sponsored by Senator Ruben Ayala (D-Chino), authorizes construction of the Los Vaqueros Dam in Contra Costa County, the two-dam Glenn Reservoir complex in Glenn County, and the Mid-Valley Canal to transfer water from existing canals across the San Joaquin Valley. The total cost of the 20-year project is estimated at $3.5 billion.

Opponents to the dam argue that it is too costly and that it would endanger the delicate ecosystem of the Sacramento River delta, and that water needs could be met by better use of existing supplies, i.e. conservation.

Write to your California representatives and urge them to oppose S.200 on the grounds mentioned above. We don't need another pork barrel water project. (State Capitol, Sacramento, California 95814.)

Join FOE's Nuclear Industry Monitors Network. As both the NRC and the DOE must answer to various congressional committees, citizen action can have a big effect on the fate of the nuclear industry. If you send us your name, we will keep you informed of key votes coming up and roll calls gone by. Keep up with your own legislator's actions concerning nuclear power; the active citizen will have a chance to influence those actions. Send your name and address to: Nuclear Industry Monitors Network, Friends of the Earth, 530 7th Street SE, Washington, DC 20003.



GOOD NEWS! After six months of ceaseless effort by FOE's Erik Jansson, the Federal Aviation Administration and the EPA have agreed to gather public comment on FOE's petition to rewrite pesticide and herbicide application regulations. FOE's proposals include making it illegal for aerial and ground sprayers to let pesticides drift upon people and their property without prior written permission (for more information, see next NMA or write Bob Scowcroft, 124 Spear Street, San Francisco, CA 94105). The public comment period ends April 17. Please write to: FAA, Office of the Chief Counsel, 800 Independance Ave. SW, Washington, DC 20591; and EPA, Document Control Office, Chemical Information Division, T.S.-793, Room 447, East Tower, 401 M Street SW, Washington, DC 20460. Letters to both agencies must be labeled "Attn: rules docket (AGC-24), docket #19448."

NIGHT OF THE CONDOR

DRAWING BY MARIA RODRIGUEZ

by Kenneth Brower

DR. CARL KOFORD led the way past tall, gray rows of museum cases, then up a flight of stairs and past more museum cases. We were in a scientific mausoleum—the Museum of Vertebrate Zoology of the University of California at Berkeley—and the Navy-gray cases filled the place. The air was cool and smelled faintly of napthalene. At the far end of the room, bone-white atop the Navy-gray, too big to fit inside, was the skull of a gray whale. Dr. Koford turned hard right, into an aisle between two Navy-gray rows. He did not have to pause to read the number. He knew this aisle by heart.

"You can tell the condor case," he said, nodding upward. "It's the biggest one." He was right. The case labeled "Cathartidae" was twice as long as the others. He reached high to undo the hasps.

Koford was a trim, graying man, retired now but youthful in his movements and expression. He wore an old red-checked shirt with frayed holes in one shoulder. His face was pleasantly weathered from a life spent observing animals in the field—vicunas in South America, monkeys in Puerto Rico, prairie dogs on the prairie, and, at the beginning of his career, condors in southern California.

He removed the front panel, setting it on the floor. An invisible cloud of napthalene escaped the case and enveloped us. Inside the case were four horizontal trays, and Dr. Koford rolled out the lowest. For an instant I felt like a relative called down to the morgue to identify the victim. Clearly, though, the corpse on the tray was no kin to me. The bird was enormous—in life, condors weigh 20 pounds or more—and it lay on its back. There were two others supine behind it. I studied the great hooked beak, designed to tear at carcasses. I ran my finger along a foot, which, uncurled, would have had the span of a woman's hand. With a fingertip I tested the pinpoint of a talon, designed to hold a carcass down while the beak tore. There were, I knew, only about 30 condors left in the wild. It occured to me that sometime early in the next century, perhaps sooner, the only California condors on the planet might lie supine on trays like these.

I READ the labels. The condor's scientific names were felicitous. The condor and the other American vultures belong to the family Cathartidae, from the Greek *kathartes*, "a cleanser," from *katharos*, "pure." The etymology recalled the dignity in what might sometimes seem a grisly profession. The vultures are responsible for a catharsis of the landscape. Their job is to take things down to the bone again. The condor's generic name was *Gynogyps*, its specific name *californianus*. *Gymnogyps* derives from *gyps*, Greek for vulture, and *gymnos*, "naked." The condor's head and neck are naked of feathers, an adaptation that allows the bird to clean itself more easily after the grisly work.

"This one is a juvenile male shot near Pasadena in 1908," Koford said, fingering a tag tied to the foot. "And this one was taken in 1886." Over his shoulder, I read the Victorian handscript on the second tag. This bird had been dead nearly a century. Time had desiccated it. Hefting the body, I found it nearly weightless. Dr. Koford rolled out another tray. He burrowed with his fingers in the downy neck of another young bird, as if searching for something there. "This one is still pretty downy," he said. "It was probably killed the same year it came out of the nest." (Growing up in condors is the reverse of growing up in men. Condor necks are feathery in adolescence, naked in adulthood.) "The big mortality takes place in the first months out of the nest. They're such lousy fliers at first."

He demonstrated how the young bird defends itself in the nest. Putting his head down, he hissed and hit at me awkwardly with his wingtips. Then he looked embarrassed. He had forgotten himself for a moment and had become a condor.

Several detached flight feathers lay at the foot of one bird, and Koford now picked up two of them. "Individual feathers are over 24 inches long," he said. Holding a feather in either hand, he extended his arms, pointing the feather tips outward. "The length of the wing bones is about the same as in a human's arms, so this would be the wingspread."

"Eight feet?" I estimated, too quickly.

"Nine," he said. He stood with his wings extended. He had forgotten himself again. For a moment, there in the narrow, Navy-gray aisle, he soared.

RIDING the wind currents above the chaparral-covered California hills, condors make a musical whistling as air spills past their pinions. "As if," Peter Kaplan has written, "all the grace and freedom of flight were expressed in a few singing notes." The singing is audible one hundred yards away, and is more pronounced and harmonic in adults than in juveniles, as if the wind-song required some learning. Diving, the condor makes a roar like escaping steam, audible half a mile away.

The distinctive feature of condor flight is high stability in soaring. The condor's "loading"—its ratio of body weight to wing surface—is heavy, nearly twice that of the turkey vulture. Turkey vultures can ascend more quickly, but in any kind of turbulence they wobble markedly in comparison. Sailing on their thermals, condors hold rock steady. Human observers, even experienced ones, often mistake condors for transport planes, and planes for condors. Condors can soar for an hour without flapping. They can glide without turning for eight minutes or more and can cover ten miles on one tack.

It is possible to appreciate the catharsis performed by the condor yet still shudder a little. It would be difficult to invent a more perfect symbol for death. The condor is archetype for the Grim Reaper. Perching, the bird is dark, ruffed, and broadshouldered, as if wearing a black cape. The head is naked as a skull. The beak and talons are cruelly curved, the eye blood-red. Soaring, the condor extends the incredibly long fingers of its pinions, eight black sabers on each wingtip.

Gymnogyps is a survivor of an epoch when the scale of life was larger. In the Pleistocene, condors appear to have been more abundant in North America than black vultures or turkey vultures. The smaller vultures, perhaps, were unable to compete with condors at the giant corpses of that period's megafauna. It was the condor, then, that waited on musical wings for mammoths and glyptodonts and chlamytheres to die. They watched *Megatherium*, the giant ground sloth, and *Tapirus*, the giant tapir, as those antediluvian creatures struggled in the La Brea tar, and sometimes they landed to become trapped themselves. Standing in their circles, shuffling and pecking for position, they awaited their turns to feed on American camels, hippopotamuses, and lions, on dire wolves, saber-toothed cats, and hyenoid dogs. They broke off their soaring and dove to avoid passes by their giant Pleistocene cousin, *Teratornis*, a supercondor weighing fifty pounds, perhaps the largest bird ever to fly. *Teratornis* died out with the Pleistocene. *Gymnogyps* had the last laugh.

IN HISTORICAL times the California condor ranged as far north as British Columbia, as far south as Baja California. The Spaniards saw them along the California coast and called them "royal eagles." Lewis and Clark saw them in large numbers at the mouth of the Columbia River, and called them "buzzards." Today that former domain has shrunk to several counties in southern California. When, 40 years ago, Carl Koford began his study of condors, the population he estimates was 60 birds. A subsequent study showed that in the period 1946-1963, the number fell by a third—40 birds survived. The most recent study estimates 30. The condor appears to be going the way of *Teratornis*.

In February of 1979, the US Fish and Wildlife Service (USFWS), after consultation with the National Audubon Society, circulated a draft proposal for meeting the condor crisis. Its first recommendation was that "all

Its first recommendation was that "all free-living condors should be trapped, individually marked, and fitted with radio transmitters." A number of the trapped birds would be bred in captivity and their offspring returned to the wild.

There were other recommendations—that the condor census be standardized, that condor food items be analyzed, that pesticide levels be checked in similar birds—and Carl Koford favors many of these, but to the first he is strongly opposed.

"It's absolutely unnecessary, and probably harmful, and may wipe these birds out far sooner than would happen without interference."

Condors live 30 to 40 years, he points out, so there is no danger of immediate disappearance. There is reason to hope that the condors will recover naturally, he believes. The use of DDT has diminished recently, and as a consequence the brown pelican, for one, is coming back from the edge of extinction. Use of compound 1080 to poison mammals is decreasing in the condor's range, and deer hunters there are fewer. USFWS itself estimates, he notes, that there are six or seven immature birds among the 30 survivors, an encouraging increase over the four immatures estimated in 1974. Capture will be traumatic for the birds, both physically and mentally. There is no guarantee that they will breed in captivity, or that zoo-propagated birds will be knowledgeable enough about the subtleties of condorhood to survive in the wild. We have time enough, he thinks, to take a number of more appropriate steps before resorting to measures so drastic and untried.

"There is a great deal of learned behavior in condors," he says. "How are these released birds going to know about avoiding storms, and attacks by eagles, and how to compete with other birds at the carcass? There's no precedent to suggest they can do it. I keep ducks. If I put a new duck in with three other ducks, sometimes they kill it. Or like hatchery-raised trout. Trout raised in a hatchery don't act like other trout. They're in the wrong part of the stream; they're eating the wrong food. A released bird is only half a bird."

THE USFWS and the Audubon Society dismiss Koford's objections. They are convinced that the condor's plight is desperate and requires desperate efforts at salvation. This dismissal of Koford would be a simpler matter if only he were something other than the world's foremost expert on this small tribe of huge birds. But he is nothing other. His *The California Condor* remains the major work in the field, and nearly the only one.

When Koford was 24, an age when he should have been drinking beer with his buddies and running around in Model-As, he was living instead in a cave half a mile from the caves where his condors lived. He was shooting horses to see if the condors were interested in the cadavers. He was traveling the semi-deserts of upper and lower California, questioning vaqueros about condors they had seen. He was photographing the remains of animals after condors had finished with them. Mostly, for three years of his life, he was watching. He watched the ponderous, hopping run of condor take-off, one foot striking the ground slightly ahead of the other, the bird covering 15 to 40 feet before it was airborne. He watched condors in flight: the double dip they execute to prevent a stall or lose altitude; the flex-glide, in which the dihedral angle of the wings diminishes or becomes negative and the bird gains speed. He watched immatures tilt their tails too frequently, overcontrolling, and he watched them nearly turn themselves over in attempting turns. He watched birds descending and he noted how early their landing gear came down—the feet dropping ten minutes and 1,000 feet above the ground. He watched the characteristic yawn of condors on landing. He watched them stretch themselves, like human joggers, before taking off in the mornings, and he noted that they seldom stretched during the rest of the day. Koford counted. "For a single adult, the greatest number of side stretches that I noted was 6 during a period of 65 minutes," he would write. Gazing into condor eyes, he noted that the nictitating membrane blinked every two to five seconds. Koford listened. He heard the "muffled crash" of feathers against rock when condors landed. He heard the condor's grunt, "like a supressed human belch"—a sound in perfect harmony with Cathartid diet.

A RARE THING happens about 20 pages into *The California Condor*—something especially rare in scientific monographs. Koford's descriptions of condor anatomy and behavior are lean, clear-eyed, free of jargon, instantly visualizable. The bird comes alive. If the day ever comes when all that remains of condor flesh and feathers lies on museum trays, then all that remains of condor movement and culture will lie between the covers of Koford's book.

I knew what I felt about the bold USFWS plan for condors before meeting Dr. Koford, before hearing his wishful alternatives, his emotion-charged views on the bird with which he spent his youth. I knew he was right.

The line, "All free-living condors should be trapped. . .and fitted with radio transmitters," was enough for me. I did not have to read further, to the part about laparotomies and the other indignities that would be performed on the birds.

Of all the bird-men debating the issue, Koford's view of what a condor is, is the subtlest and most complex, and thus, I think, has the best chance of being right.

Something seems to happen, often, to men for whom wildlife becomes a profession. The USFWS and Audubon people have become so concerned with the problem of the bird that they have lost sight of what a *bird* is. What use to us is a great soarer that has been handled, marked, laparotomized, popcorned by zoo crowds, and radio-tagged? A flying Pleistocene radio station. What use is such a bird to itself?

Having dreamed up a neat bit of technology with an application to biology—a miniature transmitter—we are compelled to try it out. It *is* neat, but it will never tell us as much about condors as the human eye, with a patient brain behind it. (Those were the instruments Koford used, back in 1939.)

I suspect, along with Koford, that capture will do more harm than good, that condors will breed themselves better than humans can breed them. To think otherwise is another instance of *hubris* in the species that has brought condors low.

And what if nothing can bring the birds back? What if *Gymnogyps*, watching Los Angeles sprawl toward its last hills, has simply decided it is time to go? Perhaps feeding on ground squirrels, for a bird that once fed on mastodonts, is too steep a fall from glory. If it is time for the condor to follow *Teratornis*, it should go out unburdened by radio transmitters.

Departing, the condor might do us a final service, in the manner of mine-shaft canaries. They might open our eyes. When the *vultures* watching your civilization begin dropping dead from their snags, it is time to pause and wonder.

KENNETH BROWER'S latest book is Wake of the Whale *(Friends of the Earth/E.P. Dutton). This article first appeared in* Omni; *it is reprinted by kind permission of the author.*

NMA sadly reports that Dr. Koford passed away at the end of 1979.

FOE Sues to Save the Condor

STATING that a purported recovery plan for the endangered California condor, the world's largest bird, "threatens to destroy the species in a misguided effort to save it," Dave Brower, chairman of the board of Friends of the Earth, has urged Secretary of the Interior Cecil Andrus to provide for public review of alternatives to the controversial plan before any action is taken. Failing adequate action by the Interior Department, FOE plans to file suit—probably in late January.

Brower charged that unfair tactics had been resorted to by California Fish and Game officials in an effort to bypass opponents of a "ludicrously perfunctory" plan, and to circumvent requirements of several relevant environmental laws and regulations. He warned that any premature agreement to go ahead with the plan "will be voidable for failure to comply" with existing requirements of law.

Alluding to violation of a December 7 agreement between conservationists and the Fish and Game Department and Commission, Brower added, "The condor deserves better than to be pushed toward extinction by enthusiasts of technological fixes or by unabashed trickery unworthy of California officials."

The Recovery Plan, required under the Endangered Species Act, has not been released in final form. The US Fish and Wildlife Service and the National Audubon Society favor the draft recommendations that "all free living condors should be trapped, individually marked, and fitted with radio transmitters," then laparotomized in an attempt to determine the birds' sex. Such an operation could reduce the two-year period that elapsed before the sex of the one presently captive condor could be determined. Prompt sexing would be necessary to fulfill the present goal of capturing four pairs from the wild in addition to a mate for the present captive. If those pairs did not breed successfully or if reproduction in the remnant wild population was not deemed acceptable, others—up to the full population—would be taken. No California condor has yet bred in captivity and conservationists are gravely concerned about the impact on the remaining wild population that would result from the removal of breeding stock.

Friends of the Earth, together with a Sierra Club blue-ribbon committee and several independent ornithologists, have urged the alternative of eliminating the practice of predator poisoning in the critical condor area and minimizing human disturbance instead of increasing it. Experiments on unendangered relatives of the condor should be proved successful before captive breeding is contemplated. Friends of the Earth also urges a special environmental analysis to determine whether removal of the condors from their habitat would result in it being developed and mined, and whether these activities would make it impossible for the birds to return. Present plans, announced recently by the Interior Department, call for captive breeding of the condor in pens in San Diego or Santa Cruz in the hope that captive-bred birds could be released, decades hence, and breed and survive in some as yet undetermined wild place.

"Whatever the proper course may be," Brower said, "There is controversy enough to require that the public be heard and that public rights not be overridden." He urged that Secretary Andrus "enlist the cooperation of an informed public so that the sound alternative recovery plan can proceed in time."

—*David Phillips*

Cheap water flows to big landowners in California's Westlands Water District.

Photos © George Ballis, courtesy National Land for People.

SMALL FARMS VS. MODERN BARONIES

> *"The very purpose of the bill is to guard against land monopoly and to hold the land in small tracts for the people of the entire country."*

BY BRIAN BERKEY

IN THE MOVIES, battles over land and water in the mythic West were usually decided by gunfire, and the guy in the white hat always won in the end.

Sometime this spring, a new battle over land and water will be fought, but it will take place in the House of Representatives, and it will involve land and water on a scale undreamed-of by Hollywood. Potentially at stake are billions of dollars worth of federal irrigation, and 11 million acres of land in 17 western states, especially California.

How the House votes may permanently end the 78 year-old struggle started by the National Land Reclamation Act (NRA) of 1902. To ensure fair distribution of federally developed irrigation water, the NRA was constructed around two vital stipulations:

SECTION 5 of the Act reads: "No right to the use of water for land in private ownership shall be sold for a tract exceeding 160 acres to any one landowner, and no such sale shall be made to any landowner unless he be an actual bona fide resident on such land, or occupant thereof residing in the neighborhood of such land." These two mandates, the residency requirement and 160-acre limitation (interpreted to allow 320 acres for a married couple), have been at the heart of the dispute ever since.

The language seems perfectly clear, but the acreage limitations and the residency requirements have yet to be meaningfully enforced, almost eight decades after the passage of the law. Billions of tax dollars spent on a series of mammoth water projects did bring new life to the dry earth, but by 1972 the US General Accounting Office confirmed to Congress that so many abuses of the NRA had taken place over the years that the intent of the Act had been foiled.

Rather than encouraging small farmers, the irrigation projects had further entrenched western land monopolies, enriching huge agribusiness corporations and promoting a kind of farming disastrous to both land and culture.

In 1974, farm census figures showed that in California, the state most heavily dependent on reclamation project agriculture, 10 percent of the farms occupied almost 60 percent of the total irrigated acreage. These farms are all more than a thousand acres, and some range into the tens and even hundreds of thousands of acres. Their adversaries have frequently described them in feudal terms, as modern baronies governed by distant boardroom fiat, overseen by business managers whose fealty is to a corporate bottom line rather than to the health of the land, or to the quality of food produced on it, or the lives of the people who work it.

> *"At times we have to rise above principle."*
>
> —JESSE UNRUH, *California State Assemblyman, arguing against acreage limitations in 1960*

The big landowners contend that the law itself is unfair, and has therefore been unworthy of enforcement.

Historically, however, every legislative reconsideration of the NRA has affirmed its original intent. Some actually strengthened it, including the 1962 Omnibus Adjustment Act, which was intended to prevent speculative profiteering on land improved by federal money by stipulating that the sale price of excess land had to be set at pre-irrigation levels, with buyer eligibility approved by the Bureau of Reclamation.

THE COURTS have also consistently upheld the notion that the government should be providing water to independent small farmers, rather than subsidizing already wealthy corporations. In 1958 the US Supreme Court dismissed a challenge to the NRA (in its decision on *Ivanhoe Irrigation District vs. McCracken)* with stunning economy of phrase: "The project was designed to benefit people, not land." And in 1967 a Ninth Circuit Court of Appeals decision, concerning California's Tulare Lake Irrigation District, ruled that water provided by Army Corps of Engineers work was subject to the same limitations as other federal irrigation projects, thus eliminating one of the big landowners' long-standing loopholes. A subsequent appeal by those landowners to the US Supreme Court was dismissed.

The upholding of the integrity of the Act has been relatively straightforward; the history of non-compliance by large landholders, however, has been marked by ever-increasing complexity and confusion. The spirit of the law has been muddied by political power brokerage and by weak or non-existent enforcement by the Bureau of Reclamation.

CURRENTLY, 68 landowners (including Southern Pacific, United Brands, and Holly Sugar Co.), representing 1.8 percent of the Imperial Valley ownership population, own 28 percent of the land in tracts of 1,280 acres or more. When lease arrangements are included, the figures shoot up to 61.4 percent of the land being controlled

Father and son working their land, Lanare, California.

by 10 percent of the growers.

The Westlands Water District in California's San Joaquin Valley is an example of current attempts at enforcement. West of Fresno, this recently developed reclamation district is the largest in the country; irrigating 600,000 acres. Before irrigation began, some of the most massive ownerships were concentrated in Westlands, including Southern Pacific with 109,000 acres, Russell Giffen & Co. with 45,000, and Standard Oil with 11,000.

Before the valves to their fields were opened, however, some of Westlands' big landholders signed contracts promising to sell land in excess of 160 acres within a ten-year limit. (This contractual obligation and the ten-year limit were established by amendment to the NRA in 1912.) As the deadline approached, some land was sold.

Investigations of some of these sales have turned up a new kind of husbandry, which involves planting paper in the right places. Sales have been funnelled through mazes of trusts, partnerships, leases, front names, guaranteed loans, improvement sales, and the like, creating new small farms on paper but leaving the big ones on the land intact.

One such sale, approved by the Bureau of Reclamation in 1974, involved deeding 3,000 acres from Giffen, Inc. to twelve different names, trusts, and companies; the deal also included an additional 5,000-acre lease arrangement. Through either lease or sale, all the land ended up under the control of Jubil Farms, Inc., whose "farmhouse" is in midtown Manhattan; the sole incorporator or "farmer" is the middle-aged secretary of the legal firm that put the deal together. The total of 8,000 acres—12 square miles under federally subsidized irrigation—is currently farmed as one unit, and its income goes to the Japanese trading company which owns Jubil Farms and financed the whole thing.

ALTHOUGH these sales clearly violate the spirit, if not the letter, of the law, the Bureau of Reclamation has remained unalarmed by them. To date, only one prosecution in Westlands has taken place; a speculator named John Bonadelle was fined $10,000 for a land fraud that netted him $300,000 in an eleven day turnover.

Last fall, the Senate passed S. 14—a bill so riddled with loopholes favorable to big landowners, its opponents claim, that it amounts to a revocation of the 1902 Act.

Coupled with pending legislation in the House, S. 14 constitutes a final push by the big growers; they have to win in Congress only once, and the long-standing war over enforcement and interpretation, and the accusations of corporate criminality, will be over. As befits such a major push, a lot of money is being spent: the big growers of the Westlands district budgeted $500,000 in 1979 for legal expenses, and those of the Imperial Valley spent $400,000 in advertising and lobbying. Why are they bothering now after years of ignoring the law?

Times have changed, and the big growers have sensed it; they are worried. The land reform movement has come of age in the last ten years, now including major labor unions, national church groups, environmentalists, consumer activists, civil rights lawyers, and a growing number of progressive politicians among its ranks.

The first hint of change was felt in 1975, when National Land for People (NLP), a tiny Fresno-based group of land reformers and small farmers, sued the Bureau of Reclamation in the District of Columbia federal court.

Outraged by its own research into Westlands Water District excess land sales, NLP petitioned the Bureau to change its rules regarding approval of excess land sales; it also sought an injunction prohibiting any further sales until new rules spelling out acreage and residency requirements had been published.

In 1976, the court ruled in NLP's favor and appeals by the land corporations were rejected. The next year, a new Secretary of the Interior, Cecil Andrus, extended the moratorium to all 17 states and published a proposed set of new rules for public comment. Although the new proposals were quite moderate, when coupled with the court decision and Andrus' apparent support of the NRA, they could be seen as a genuine threat to big growers.

LARGE LANDOWNERS won a court suit in 1978, demanding environmental impact studies before any new Bureau policies could be adopted; it was a delaying tactic that allowed 30 different pieces of legislation to be developed. None of them survived that congressional year.

Since then, a flurry of suits, countersuits, and political turnarounds have occurred. Secretary Andrus reversed his stance when he persuaded a federal court to declare its NLP decision moot; NLP has since gotten it reinstated. All the sound and fury, however, has left the issue essentially where it was before: up in the air. But it cannot stay there forever; when the House votes this spring, political gravity will occur.

The land corporations and agribusiness farms have collected a number of reasons for why the NRA should be repealed; a good many of these reasons claim that the law promotes unfair advantages in competition by limiting the size of irrigated farms.

The big landowners have also conjured up the familiar specter of creeping socialism and government interference. One advertisement, published nationally by Imperial Valley growers, told the public that "they are going to take away our land."

This is less than factual: the law limits water distribution, not land. No one has ever been forced to accept federal water, or the limitations that go along with it; most of the major reclamation projects required intensive lobbying by big land interests for construction in the first place.

The real centerpiece of the big landowners' argument is the contention that technology and new management techniques have outdated the small farmer, and the NRA with him.

The big growers cite economy of scale and efficiency of production as the cornerstones of their argument that giant corporate farms are better. This economic efficiency is passed on, in theory, to the consumer; a return to small farming, they claim, will set the nation back by years.

A NUMBER of studies, however, by the Department of Agriculture, various agriculture schools, and independent researchers, have shown that economies of scale end rather quickly at surprisingly small acreages, the exact acreage depending on the crop. Economy of scale is in part an indirect measurement of yield per acre (balanced against farm size, cash input, and net return); other studies have shown that this yield, which is the truest measure of productivity, actually goes down as farm size increases beyond a certain point, once again depending on the crop. In agricultural terms, the small farm's performance indicates that it is not outdated at all.

But can small farms survive economically? Some basic figures show that they have so far:

- California state agency studies show that farms of 320 acres or less have a net yield of $27,000 to $63,000 a year, depending on the crop grown.
- The 1974 farm census showed that 47 percent of the California farms that returned a profit did so on less than 50 acres.
- The same census revealed that 71 percent of California farms operated on less than 180 acres.

Although these figures are only for California, it should be noted that California is the state most heavily dominated by land monopolies. What would it be like if the odds were not so fiercely stacked against the small grower—if, for example, the reclamation laws were truly enforced? That is anyone's guess; Tony Dechant, of the National Farmers Union, estimates that only about 5,000 farms in *all* the western states are in violation of the NRA; the rest, by the big growers' argument, are outdated.

THE ramifications of the upcoming congressional decision reach further than politics and economics. The impact of land monopoly and agribusiness farming on human culture has been well-documented, beginning with the famous Arvin-Dinuba study in 1946. This study concerned two similar rural towns, one surrounded by family-owned farms, the other dominated by company-owned farms. It was found that by any standard associated with richness of community life—jobs, small businesses, family income, churches, community participation—Dinuba, the small farm town, was a demonstrably healthier place to live. In 1977 a return study of the same two towns found that the intervening years had widened the differences; other studies of other communities have found similar results.

The same corporate farming trends that have turned rural communities into ghost towns have taken their toll on the land as well. Techniques that owe their existence to business management rather than sensible farming have wrought havoc on the land; research has shown that as farms grow bigger, so does the capacity for long-term damage.

Increasingly heavy machinery needed for production efficiency results in soil compaction and loss of crumb structure, causing massive erosion and reduction of yield. Nitrate fertilizers, necessary for contractually guaranteed yields, wipe out soil bacteria, and later leach off to become pollution problems. Monoculturing, lack of rotation, and increasingly hybridized seed stock have all fostered heavier dependence on chemical weed and pest killers.

CURRENTLY 16 pieces of legislation are competing for support in the House, all struggling to survive the process of committees, subcommittees, and backroom bartering. How the House will vote is uncertain, but signs are not good.

In the analysis of Wendell Berry, the eloquent spokesman for agricultural sanity, America has essentially colonized its rural communities. Like any colony, its citizens have been degraded; as second class or obsolete; its resources have been exploited, the very land itself abused and exhausted. Because we have done it to ourselves, the foolishness and injustice of this colonization are hard to perceive, but they are there all the same; they have built up in the body politic over a period of time, unnoticeably, like the pesticides we eat with our produce.

Keeping the promise of the law passed in 1902 is a first step in reversing that trend. Paul Taylor, the economist who almost single-handedly kept the reclamation issue alive for three decades, said it well: "Who owns the land is not something trivial to a nation. It is central to our society, to our economy and to our political system."

***What You Can Do:** Every Member of Congress needs to hear from his/her constituents on the reclamation fight that is raging now. Ask your Representative to co-sponsor H.R. 3393, the Reclamation Lands Opportunity Act, introduced by Don Edwards (D-Calif.) and Jim Weaver (D-Ore.), with 14 co-sponsors already. The residency requirement (of 15 miles from the land or the nearest incorporated town—whichever is farther) is the key provision. Visits and calls to Representatives should emphasize concern for people living on or near the land they farm.

The focus is now on the Subcommittee on Water and Power of the House Interior Committee. Ask your Representative to make his/her views in support of H.R. 3393 known to members of the subcommittee. Probably the most important Member of Congress on this issue, at this time, is George Miller (D-Calif.), whose bill, H.R. 5783, does not contain the residency provision. Let him know how you feel about rich absentee proprietors of federal water welfare.

For more information, contact the National Land for People, 2348 Cornelia Avenue, Fresno, California 93711; (209) 233-4727.

BRIAN BERKEY, *a former* Connecticut *farmer, is now a freelance writer living in Berkeley, California.* ☐

Farm Mechanization Subsidies Curtailed

SECRETARY of Agriculture Bob Bergland announced on December 13, 1979, that he will cut off all federal funds for agricultural mechanization research and development.

"I do not think federal funds for labor saving devices is a proper use of federal money . . . . I have some control over a billion dollar research budget in the Department of Agriculture—it is largely administered by state universities but through the process of intimidation and harassment I can even get some changes there," Bergland said, in announcing his decision.

Mechanization of agriculture eliminates jobs, dispossesses small family farmers, and fosters an agribusiness monopoly over food production.

Some land reformers are skeptical that Bergland's new policy will have much of an effect on the direction of agricultural research, since most is paid for by private agribusiness corporations anyway. —E. S.

Foreground: the Alton Hills, site of proposed stripmine. Pink Cliffs of Bryce Canyon in background. Photos by Gordon Anderson.

Allen-Warner Valley Project:

Coal Prospectors Stake Claim Too Close to Bryce Canyon

by Gordon Anderson

THREE YEARS AGO, environmentalists and residents of southern Utah were at each other's throats. The issue was coal: a huge deposit of coal on the Kaiparowits Plateau that the Utahns wanted dug up and the conservationists wanted left alone.

Now, many of those same people have closed ranks and formed a unique alliance. The issue, again, is coal, only this time a band of locals from near Kanab, Utah, wants to keep the coal from being mined for fear that such mining would disrupt their cattle ranching operations and threaten their water supply.

The coal in question lies beneath the Alton Hills, just barely outside the boundary of Bryce Canyon National Park. The mine, a huge strip mine, would be visible (and audible, and smellable) from at least one of the park's most famous overlooks. From the Alton mine, the coal would be piped south to two power plants, a 2,000-megawatt behemouth known as the Harry Allen Plant northeast of Las Vegas (near the Desert National Wildlife Refuge), and a 500-MW Warner Valley Plant just 17 miles from Zion National Park in southwestern Utah.

In an attempt to stop the mining plans, a group of local residents and the Environmental Defense Fund, Friends of the Earth, and the Sierra Club Legal Defense Fund have filed what is known as an "unsuitability petition," urging the Department of the Interior to designate the Alton Hills unsuitable for mining.

The Alton Hills

THE SOUTHERN UTAH/NORTHERN ARIZONA section of the Colorado Plateau has been described by geologists as a gigantic rock staircase of south-facing cliffs and escarpments. Over a distance of 150 miles, the huge staircase descends in one and two thousand foot drops from the top of the lava-capped high plateaus, at an elevation of 10,000 feet, to the inner gorge in the Grand Canyon, 8,000 feet below. The Alton Hills occupy a ten-mile-wide by thirty-mile-long terrace separating two of the upper steps of the staircase.

To the north, the intricately dissected, fantastically colored array of rock castles, pinnacles, and windowed walls of the famous Pink Cliffs of Bryce Canyon National Park and Dixie National Forest tower over the Alton Hills. Dropping abruptly away to the south of the Alton Hills are the White Cliffs, an elongated row of sheer rock faces and huge monolithic buttes of Navajo Sandstone, which rival features similar to those in Zion National Park. These spectacular cliffs, along with the rugged surrounding canyonlands, are part of the proposed 250,000-acre Paria-Hackberry Wilderness Area.

The Alton Hills, encircled by national parks, de-facto wilderness, and unique desert scenery lies in the very heart of the unspoiled canyon country of the American Southwest. Should any coal deposit in the United States deserve to be declared unsuitable for mining, then, as Brigham Young said when he first saw the Salt Lake Valley, "This is the place."

The Allen-Warner Valley Project

TO THE ENERGY DEVELOPERS and politicians of the Southwest, however, the Alton Hills offer an irresistible opportunity for rapid resource exploitation, not scenic preservation. A group of electric utility companies, including Southern California Edison, northern California's Pacific Gas & Electric, and Nevada Power, plan to carve one of the world's largest coal strip mines into the Alton Hills.

The strip-mined coal, some 10.5 million tons yearly, is slated to fuel the proposed Allen-Warner Valley Project. The coal would be mixed with an equal proportion of water obtained from local underground wells and transported via slurry pipelines to two distant power plants. The 2,000-megawatt (MWe) Allen Plant would be located northeast of Las Vegas, Nevada, near the Desert National Wildlife Refuge, and 500-MWe Warner Valley Plant would be sited in southwestern Utah, just 17 miles south and upwind of Zion National Park. Most of the electricity produced by the two plants would be transported through two 500-kilovolt (KV) transmission lines to southern California.

The Bureau of Land Management (BLM), which administers the Alton Hills and the land where the two power plants would be built, is currently preparing an environmental statement for the Allen-Warner Valley Project. The project has already been designated a "critical energy facility" by the Department of the Interior. The project is thereby slated to be put on the "fast track," which skirts federal, state, and local environmental laws, in the name of speed.

The Unsuitability Petition

THE UNSUITABILITY PETITION was filed with the Interior Department's Office of Surface Mining (OSM), under provisions of the Surface Mining Control and Reclamation Act of 1977 (the long-sought strip mine bill). Section 522 of the Act provides an opportunity for citizens to petition the OSM to designate environmentally fragile, coal-bearing lands unsuitable for mining. The petition filed for the Alton Hills confronts OSM with the first major test of the unsuitability provisions of the strip mine bill.

The petition consists of 84 pages of legal documents and supporting affidavits submitted by distinguished scientists and the local ranchers. The petition outlines why the provisions of the strip-mine bill should allow for the Alton Hills to be legally spared from the drag buckets: The strip-mine bill provides for an area to be designated as unsuitable for coal mining if significant damage could result to the esthetic values and natural systems of adjacent, fragile national trust lands.

The nearby Pink Cliffs were described in 1876 by government surveyor T.C. Bailey as "the wildest and most wonderful scene that the eye of man ever beheld."

The Alton mine would be located within three miles of Yovimpa Point, one of Bryce Canyon National Park's most scenic panoramic overlooks. Park visitors would be able to see, hear, smell, and feel the strip mining operations below and directly in front of the overlook. Some of Yovimpa Point's 400,000 annual visitors might actually witness the toppling of the delicate spires; ironically, Bryce Canyon was originally set aside to protect it from blasting activities at a nearby mine.

According to the petition, "The altered panorama from Yovimpa Point would include a distinct, large dust plume from dragline operations, which would contrast dramatically with the pinyon-juniper background and block the view of distant objects." A supporting affidavit by air-quality and visibility expert Dr. Michael D. Williams of the Los Alamos Scientific Laboratory, states, "Surface coal mining operations in the affected area will significantly increase particulate concentrations and degrade air quality in Bryce Canyon National Park."

The National Park Service's regional director Glen T. Bean also submitted a letter in support of the petition. It concluded, "The Service is determined to take all actions which may be necessary to protect Bryce Canyon National Park from damage caused by surface coal mining."

Reclamation & Groundwater

THE STRIP-MINE BILL requires that an area *must* be designated as unsuitable for coal mining if reclamation of the mined area "is not technologically and economically feasible." The petition claims just that: that the establishment of a suitable vegetative cover would not be possible here following strip-mining operations, and offers evidence in an affidavit by Dr. Robert Coats, soils and reclamation expert from the John Muir Institute for Environmental Studies. Dr. Coats contends that semi-desert environment of the Alton Hills does not contain enough topsoil of adequate quality to reconstruct soil profiles suitable for revegetation over the 8,300-acre strip-mined area. Furthermore, Dr. Coats claims "the destruction of the present vegetative cover dominated by a pinyon-juniper forest would significantly reduce wildlife habitat, damage the aesthetic and recreational value of the area, and permanently alter the ecosystem."

The strip-mine bill also requires restoration of groundwater "recharge capacity of the mined area to approximate premining conditions" and preservation "throughout the mining and reclamation process of the essential hydrologic functions of alluvial valley floors. . . ."

Beneath the grey siltstones and coal bearing shales of the Alton Hills lies the Navajo sandstone formation. This 1,500-foot-thick rock layer is composed entirely of windblown sand dunes deposited here during the age of dinosaurs. Over the millenia, the tiny pore spaces separating the billions of sand grains in the rock have become filled with groundwater. The petition claims that strip mining above the Navajo sandstone would irreparably disrupt the natural downward percolation of water to recharge this underground reservoir.

Dr. Robert R. Curry, Professor of Environmental Geology at the University of California, who specializes in problems of watershed restoration and mined land reclamation in the West, supports this claim in his affidavit. Dr. Curry also predicted that pumping 9 million gallons of water daily from the Navajo sandstone aquifer to supply the coal slurry pipelines would surely decrease flows of springs and wells in the area. Local ranchers, as well as the residents of Kanab, depend upon these underground water sources for their very existence. Petitioner Jet Mackleprang, a fourth generation Mormon rancher, succinctly summarized the surface impacts of the planned water withdrawals, "Without a water supply this land is worthless."

Strip mining on the steep slopes of the Alton Hills would also accelerate erosion, increase flooding, and significantly add to sediment loads of streams draining the area. These impacts, according to Dr. Curry, would destroy the valuable pasture and croplands of the downstream alluvial valley floors. In other words, the "essential hydrologic functions" of these desert stream valleys would likely become buried under a sea of mud washed down from the mine.

UNDER THE ACT, an area may also be designated as unsuitable for coal mining should a substantial loss or reduction of the long-range productivity of the affected or adjacent areas result. The Alton Hills is cattle country. Grazing livestock on the open range and growing alfalfa for food on the valley floors are the area's principle agricultural activities. Another fourth generation Mormon rancher, Sylvan Johnson, submitted these comments in his petition affidavit:

"My family has owned and farmed this land since 1870. I use 600 acres of my land for winter range for my one hundred head of cattle, and 200 acres for growing alfalfa. I also depend on several wells and springs which are supplied by the Navajo sandstone aquifer. Any reduction in the quality or quantity of my water would seriously affect or even prevent farming or ranching on my land, and significantly decrease its value."

The ranchers also expressed concern over the health and safety of their livestock should the strip mining be allowed. "Trucks hauling coal would stir up dust along the roadside, and it would settle on livestock feed and cattle wouldn't graze it," petitioner Mackleprang wrote. The impacts of the planned bumper-to-bumper coal-hauling traffic—one 120-ton truck leaving the mines for the slurry preparation plant every three minutes, 16 hours a day, for the next 35 years, would probably overwhelm any effort at cattle ranching in the area. As a result, "Many families would have to sell their land if livestock operations were curtailed and moved elsewhere," Mackleprang noted.

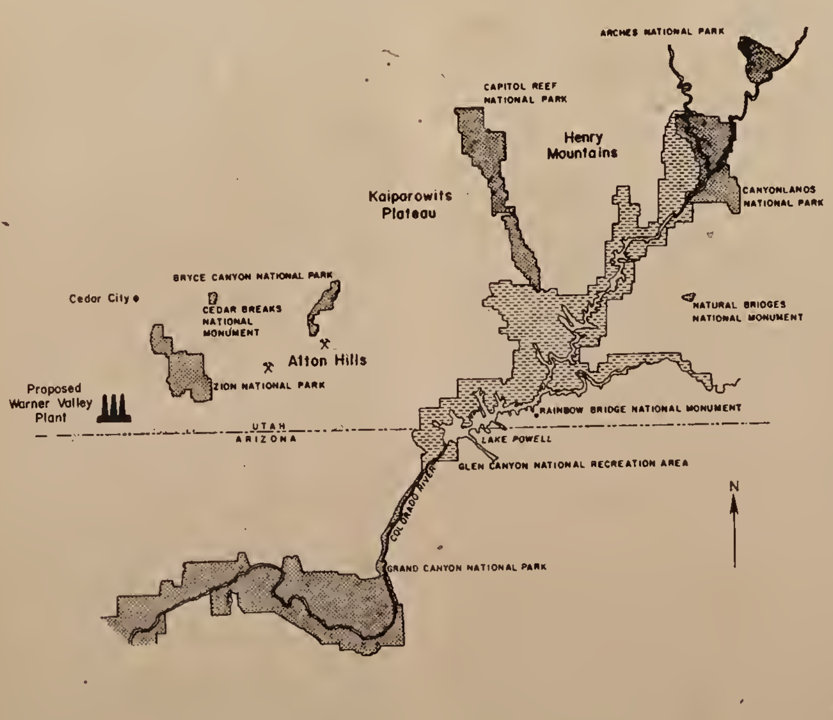
Coal miners on their way to work from Kanab would travel on a seldom used dirt road through Johnson Canyon, where many of the ranchers now live during the winter months. The expected convoy of 120 cars and trucks passing by every hour during commuting hours also deeply concerns the petitioning ranchers. "Johnson Canyon won't just be impacted by this project," petitioner Caroline Lippincott said, "The canyon and a whole way of life will be destroyed."

The Way Out

PERHAPS the most important affidavit in the petition is concerned not with the direct impacts of the Alton strip mine, but with the feasible alternatives to the Allen-Warner Valley Project. Dr. W.R.Z. Willey, staff economist with the Environmental Defense Fund, has conducted extensive research and prepared detailed analyses of the electrical supply plans of the principle energy participants of the A-WV Project, Southern California Edison and Pacific Gas & Electric. These studies conclusively demonstrate that a redirection of utility investment in cogeneration, conservation, and proven alternative energy sources (solar, wind, hydro, and geothermal) could eliminate the need for the $4 billion project. Dr. Willey also points out that "proceeding with the A-WV Project. . .would substantially impede or foreclose the development of these environmentally and economically superior energy alternatives."

Predictably, the contentions of the petitioners regarding the environmental impacts of the proposed Alton mine and the application of conservation and alternative energy sources are dismissed by A-WV Project proponents as exaggerated claims.

Three years ago, angry pro-coal development residents of southern Utah burned environmentalists in effigy.


ARCHES NATIONAL PARK
CAPITOL REEF NATIONAL PARK
Henry Mountains
Kaiparowits Plateau
CANYONLANDS NATIONAL PARK
BRYCE CANYON NATIONAL PARK
Cedar City
CEDAR BREAKS NATIONAL MONUMENT
NATURAL BRIDGES NATIONAL MONUMENT
Alton Hills
ZION NATIONAL PARK
Proposed Warner Valley Plant
RAINBOW BRIDGE NATIONAL MONUMENT
UTAH
ARIZONA
LAKE POWELL
GLEN CANYON NATIONAL RECREATION AREA
COLORADO RIVER
N
GRAND CANYON NATIONAL PARK

Proposed coal development in southern Utah.

J. Leroy Balzer of Utah International, the mining company that would operate the Alton mine noted, "We're not planning to rip up the country like the old concept of the mining industry as 'rape, ruin and run.' Our commitment is to stewardship of the land." Utah Senator Orrin G. Hatch pointedly concluded, "The environmentalists want to stop everything, period, even though [this project] could alleviate the energy crisis."

It is now up to the Office of Surface Mining to evaluate the existing evidence, conduct the additional studies necessary, hold public hearings, and settle the contradictions.

William Curtiss, attorney for the Sierra Club Legal Defense Fund, predicts OSM's task will not be an easy one: "OSM must make a clear judgment in this case, either to declare the Alton Hills unsuitable for coal mining or approve the application for the strip mine." Within the Department of the Interior, the sides have already been drawn. The developmental interests within the Land & Water Branch, spurred on by Utah's congressional delegation, are at odds with the preservation mandate of the National Park Service.

It would seem that Secretary of the Interior Cecil Andrus has taken the position of advocating the development of the Allen-Warner Valley Project by placing the burden of proof regarding the strip mine's impacts entirely on the National Park Service. In a recent speech delivered in Salt Lake City, Secretary Andrus assured the audience of prominent Utah politicians, business leaders, and industrial representatives that his department is working closely with the sponsors of the A-WV Project. He then said, "Instead of assuming that the very concept of a mine within a few miles of the national park is objectionable, the Park Service will, with almost surgical precision, determine what the genuine specific impacts of mining would be. It is possible, of course, that mine plan changes needed to protect the park would be unacceptable from the company's economic standpoint. But it is also possible that a profitable mine could be developed without causing undue damage to the park. Whatever the outcome, a decision about the impact of a mine at Alton on Bryce Canyon will be based on real information and not emotion."

Whether to exploit or preserve the Alton Hills will be one of the most critical and far-reaching decisions the Department of the Interior has ever faced. At stake will be no less than the integrity of the hard-won provisions of the strip-mine bill, the fate of the Colorado Plateau parklands, and the energy future of California.

***What You Can Do:** If you agree that the irreplaceable heartland of the canyon country of the American Southwest should not be made a national strip-mined sacrifice area, make your view count. Write to Cecil Andrus, Secretary of the Interior, Washington, DC 20240. Ask Secretary Andrus to designate the Alton Hills as unsuitable for mining under section 522 of the Surface Mining Control and Reclamation Act of 1977.

Also, urge the Secretary to reject the application for the proposed Allen-Warner Valley Project in support of the conservationists' alternative plan to meet the legitimate electrical energy needs of California.

Please send letters to your Senators and Representative (Senate Office Building, Washington, DC 20510, or House Office Building, Washington, DC 20515). Encourage friends and local civic and social organizations to write too. Thank you for your help. ☐

DEMOCRACY AND THE ENERGY MOBILIZATION BOARD

By Amory Lovins

THE ENERGY MOBILIZATION BOARD, proposals for which are now pending in Congress, seems to me to reflect a profound misunderstanding of the nature both of the United States energy problem and of our political process. Its effective operation would be likely to lead to a domestic Vietnam, with its chief cast in the role of Kissinger. It is likely to increase precisely the delays and political impasses at which it is aimed, to exacerbate the strains on the federal system, and greatly to diminish the perceived legitimacy of the institutions of government. Further, these grave misgivings do not stem from any assumption that the EMB, if established, will not be run sensibly and humanely, both under this Administration and even under succeeding Administrations (which might have quite different sensibilities). I shall assume, perhaps optimistically, that EMB members will always have good intentions and be persons of exquisite sensitivity and high moral character. The defects I shall discuss arise not from assumed faults of judgment but from the motives underlying the EMB, the structure built into it, and the way in which the EMB is perceived: political reality is in the eye of the beholder, and how citizens view the EMB may bear no relation to how it views itself.

> *I fear that the EMB bandwagon is setting in motion centrifugal political forces that may soon be impossible to reverse, for they will quickly gain a momentum of their own.*

THE PRIMAL MYTH underlying the EMB concept appears to be a belief that the energy problem is how to build more major energy supply facilities promptly despite opposition. I think there is abundant evidence, on the contrary, that:

- At least 90 percent of our energy effort should go to using energy more efficiently, not to getting more of it, because the former is cheaper, faster, and easier: for example, improved energy productivity has already given us twice as much energy-"supplying" capacity, twice as fast, as synthetic-fuel advocates claim they can do (but their's costs about ten times as much if it works at all);
- Rather than seeking more energy to meet projected total demands that do not differentiate between the various types of energy whose different prices and qualities suit them to different applications, we should seek to meet our many varied needs for energy services with an economically efficient minimum of energy supplied in the most effective form for each task;
- More power stations of any kind are therefore a grossly uneconomic solution to our energy supply problem, since our only unmet needs—92 percent of total delivered energy needs—are for heat and for portable liquid fuels for vehicles, and more electricity, an extremely expensive form of energy, cannot possibly compete in these markets: indeed, it is so grotesquely uneconomic that we would save money by writing off a newly built nuclear power plant and never operating it;
- Synthetic fuels delivered at prices around $30-60 per barrel of oil equivalent are a stupid substitute for imported oil at $20-25 per barrel—almost as stupid as new electricity at over $100 per barrel—when we have available not only efficiency improvements at, say, $0-10 per barrel but also an enormous range of relatively fast and benign renewable sources at about $10-25 per barrel, already commercially available and ample (if used for the tasks each source does best) for essentially all long-term energy needs;
- Indeed, synthetic fuels are so uneconomic that it would be cheaper, for example, to save oil by having the Treasury pay from half to all of the cost of giving people *free* diesel Rabbits in return for scrapping their Brontomobiles;
- At new, lower energy demand forecasts, conventional domestic fossil fuels can be stretched for many extra decades, probably without any significant western coal mining: for example, if the US in the year 2000 used 95 quadrillion BTU ("quads") of total energy (compared to 78 quads in 1978), as forecast by Dr. Schlesinger (at a real oil price of only $32 per barrel), then we could rapidly phase out oil imports and nuclear power and leave much frontier oil and gas in the ground, with only a modest and temporary expansion of coal mining in the East and Midwest; if we needed 85 quads, which many analysts consider a ceiling we are never likely to exceed, we would need no coal expansion; if 75 quads, which may well be where we end up with no new policy initiatives, we could phase out virtually all coal mining by 2000 or shut in much lower-49 oil and gas capacity; if 65 quads, which is readily achievable (even with a doubled real GNP) with very modest clearance of market imperfections, then we could do both of these.

The question of need for new energy supply facilities is not peripheral but central; yet it is among the key questions the EMB is designed to bypass.

A FURTHER MYTH embodied in the EMB proposals is that our procedures for evaluating and licensing new energy supply facilities are unnecessary and useless, and that "procedural" requirements are simply a formalized game of hurdle-jumping. I believe history proves, on the contrary, that licensing is a means to an end, and that licensing procedures are generally intended, if taken seriously and in a constructive spirit, to be a valuable safeguard against costly mistakes. For example, when federal officials,convinced of their own superior wisdom overrode (by various mendacious means) public concerns about the route of the Trans-Alaska Pipeline, they produced precisely the West Coast oil glut the critics had foreseen, are now seeking a new pipeline to send the oil to the Midwest as the critics had first proposed. Oil company executives now privately admit that environmentalists, by making them build a better pipeline at a better time, saved them billions of dollars; but far more could have been saved were it not for official disregard for public process. For many years too, the Atomic Energy Commission cut red tape by overriding all state or local regulation of nuclear power plants. In its own proceedings it cavalierly bypassed many concerns about safety, siting, and economics. By dedicated cynicism, providing the form of due process without its substance, the AEC achieved the operation of dozens of nuclear power plants, many near our cities; yet again it appears, in hindsight, that many of the ignored objections were justified. By refusing to give them serious and timely attention, this nation poured some $100 billion down a rathole, and the AEC and its successor agencies lost their perceived legitimacy, perhaps forever. Of course the AEC was expeditious; but merely fast decisions are not the kind we most need. Wherever environmental lawsuits, for example, have delayed major energy projects, both the courts and history have found the objectors consistently right on the merits—not a hindrance to be lightly disregarded. To the extent that our political process seems cumbersome, it shows the vitality of democracy, for process is meant to resolve by reasoned public argument the fundamental conflicts that the EMB is meant to resolve by fiat—notably whether a project is needed

Synthetic fuels are so uneconomic that it would be cheaper to save oil by giving people free diesel Rabbits in return for scrapping their Brontomobiles.

"critically" or at all. Cogent analyses of impacts and alternatives, public participation, and sometimes judicial review are all essential elements of the search for sound decisions. There is simply no substitute for the wisdom of an informed populace working through an intricate and deliberate political process at many different levels. Determining where the public interest lies in complex energy decisions requires a detailed expression and an accountable public balancing of disparate and incommensurable public and private interests in many spheres and of varying weights and certainties. Democracy, the system we have painfully evolved for that evocation and balancing, is (in Churchill's phrase) the worst system of government—except for all the rest. It is messy, but not easy to replace. To presume the superior wisdom of a few appointed officials betrays an astounding contempt for democratic process—and for the legislative bodies that painstakingly crafted our procedural and substantive environmental laws.

Those anxious to replace the idiosyncratic, unpredictable meanderings of democracy with a clean, neat, once-and-for-all decision by some central body with real power, subject to minimal and essentially ineffectual safeguards, are really seeking to vent their imptience with the caprice, complexity, and rigor of democracy by doing away with them—and in an area of supreme political controversy. Some countries have long governed in this way. Yet I doubt that any of us would wish to live in those countries; further, such centrally planned countries as France, which yet have a semblance of democratic redress left, are rapidly coming unstuck in the attempt to impose their energy programs on an increasingly restive population.

ALLIED to the myth that licensing procedures are unnecessary is the presumption that they are generally required frivolously or as an obstructionist tactic. There may be such cases, just as there are probably some specific procedures with dilatory schedules, unconsolidated disparate hearings, uncoordinated agencies, impact statements padded to disguise weakness with bulk, and other obvious faults that should be corrected through the political process. But in general I believe that permit requirements are passed into law as the politically optimal way to resolve serious conflicts within a jurisdiction. Permit laws are designed to lend structure and coherence to real controversies which would otherwise be resolved Seabrook-style or in the streets. If the process is designed merely to defuse controversy without legitimately resolving conflict and without being seen to do justice, it will only make the conflict worse (and radicalize previously placid onlookers). A process designed to probe the merits of controversy in order to examine real alternatives in advance can add great power, flexibility, validity, and legitimacy to energy decision-making. But a process designed to suppress such examination or to rob it of effectiveness will forego these advantages, and gain in their place the enmity of citizens concerned not only with the particular issues but with the integrity of process. Objections which are bypassed by a "streamlined" process do not go away; they pop up elsewhere, reinforced by anger at the overt denial of due process. The very fact that the EMB proposals raise troublesome issues of constitutionality—in prohibiting judicial review of executive actions or empowering an executive body to overrule or selectively enforce laws at all political levels, despite separation of powers, due process, reservation of powers to states, and other standard doctrines—is itself a warning sign that these are innovations for which our polity is not ready. A prudent government does not treat its constituents as enemies, nor seek to govern by means that are merely not quite unconstitutional.

The logical end of the philosophy of government embodied in the EMB proposals is not only that people who feel strongly about the issues, and about justice, will move from the hearing-room and envelop-stuffing to lying down in front of the bulldozers; it is also that all the institutions responsible for steamrollering over them will lose their own perceived legitimacy. Legitimacy as seen by anyone, whether a minority or not, is a precious gift that should not be so lightly hazarded. My political judgment is that any effective attempt to achieve the EMB's aims will not only fail of its object—indeed, make site-specific conflicts far more intractable and unresolvable—but will simultaneously destroy the possibility of functional federal government: a sort of Pyrrhic defeat. This is because the political tensions that our regulatory hassles reflect are *real*. They are not just words on paper, not just posturings for the cameras; they are real people with real concerns about real hazards and disruptions. Even more important than whether those people are right is that they *have* a right to influence and tangibly to affect major decisions about their own lives. Denying them that right is a sure road to a system of government that I would not want to live under nor care to defend.

I FEAR, THEN, that the EMB bandwagon is setting in motion centrifugal political forces that may soon be impossible to reverse, for they will quickly gain a momentum of their own. In the United States today, more than sixty "energy wars"—serious political conflicts over siting major energy facilities—are now going on. These are generally conflicts between utilities or siting authorities and politically weaker rural people who do not want to live in a "zone of national sacrifice" for the benefit of slurbians a thousand miles away. Some of these conflicts are already violent. Citing one of these—in which farmers in northern Minnesota are toppling transmission-line towers on their land—Frank Zarb, former US "energy czar," rightly pointed out that the line at issue had been approved by the Minnesota political process, albeit in a way that was later changed for future cases and that the farmers consider illegitimate. What, asked Zarb, will the farmers do to projects imposed on them by a remote and unaccountable Board in Washington? Professor Luther Gerlach, a University of Minnesota anthropologist who is probably the leading US authority on the "energy wars," has successfully predicted the course of many of these conflicts, which he perceptively analyzes as often reflecting a deeper conflict between hierarchical and network patterns of social organization. He concludes that once such a conflict starts, whatever the hierarchy does is likely to make it worse; and that to win even part of its aims at an acceptable political cost, the hierarchy must evolve its own structure in a less centrist direction, not more.

My own view of the political risks which the EMB would pose to democratic values and institutions, let alone to "domestic tranquility," is colored by a recent tour of Utah, Colorado, and Montana, talking extensively with people at both a policy and a grassroots level. Feeling in those states already runs high on a gamut of federal-state issues, as I am reliably informed it does throughout the Rocky Mountain west which is the main target of the EMB. Opposition runs so deep that it is my considered judgment that if the EMB exercises substantive powers in that region, there will be blood on its hands. I would also expect such a divisive energy policy to contribute to a complete breakdown of federal-state cooperation in several important cases, amounting in practical effect to an administrative civil war. It could get even worse than that. This is already a serious problem for many local federal officials who cannot, from their regional perspective, justify the federal actions they are supposed to carry out. The good ones are already leaving, and those who remain will increasingly be those who command no respect.

WHAT should our nation be doing instead? I think the basic principles, consistent not only with my own Jeffersonian biases but with recent experience of what actually works, should include these ways to reduce political costs:

- Prefer technologies that are, and are perceived to be, relatively benign.
- Prefer technologies of such a relatively simple character that they and their potential impacts are accessible to the political process and to common-sense individual judgment by non-experts.
- Prefer technologies of a scale appropriate to minimize the costs (including the social costs) of energy distribution. Such systems will tend to allocate their costs and benefits to essentially the same people at the same time, so reducing the potential for inequities which result from allocating costs and benefits to different groups of people at opposite ends of the transmission lines, and enabling the recipients to decide with their own senses how much is enough.
- Prefer technologies on which there is already a virtual consensus, such as technical measures for more productive energy use and the benign renewable sources—both of which have long shown up in every reputable poll as commanding over 90 percent approval. We have no consensus on anything else in energy policy, and I doubt we ever shall. We should therefore *design an energy policy around the existing consensus:* press hard on the things we agree about, because they'll be enough, so we can then ignore the things we don't agree about, because they'll be superfluous.
- Prefer policy actions at the lowest possible political level in order to increase accountability, cut overheads and transaction costs, and adapt better to diverse local needs and opportunities. In a country this big and heterogeneous, with a problem as complicated and multifarious as energy, central management is more part of the problem than part of the solution. We now have abundant evidence emerging—especially from the hundreds of communities already following a soft energy path—that most people are pretty smart and, given incentive and opportunity, will go very far to solve their own energy problems. Energy efficiency improvements in the past five years have contributed over two and a half times as much to our new energy supplies as have *all* supply expansions put together—a direct comparison of individual *vs* centrally planned actions. Some communities have weatherized most of their housing stocks at truly astonishing rates. Over 150 New England factories and over 40 percent of northern New England houses have switched from oil to wood as their main energy source. We are approaching our two hundred thousandth solar building (of which half are passive and half those are retrofits of existing buildings). In some solar-conscious communities, from a quarter to all of the new housing starts are passively solar heated. A rich array of other renewable energy initiatives is spreading explosively around the country; and nearly all these things have happened through private initiative. The United States is indeed already on a soft energy path because nothing else makes economic or political sense, but it is happening from the bottom up, and Washington will be the last to know. The only question is how difficult we will make it for ourselves as Washington, overtaken by events at grassroots level of which it is only dimly aware, seeks by outmoded reflexes to placate the anxieties of a decade ago.

What sort of leadership do we need in energy? Lao Tzu said: "Leaders are best when people scarcely know they exist, not so good when people obey and acclaim them, worst when people despise them. Fail to honor people, they fail to honor you. But of good leaders who talk little, when their work is done, their task fulfilled, the people will all say: 'We did this ourselves.'" □

Navajos' Health Sacrificed for Nuclear Fuels

by Irene Fuerst

Top: Henry Black, former uranium miner, is dying of lung cancer. He says no one ever told him about the dangers of radioactivity. Bottom: Nancy Horse and daughter Amelia.

THE state of New Mexico rightly touts itself as the "land of enchantment." The casual visitor sees windswept mesas, mountain valleys, and the remnants of a sophisticated native culture. But New Mexico and the other states that make up the Four Corners region (Arizona, Utah, and Colorado) may become the land of blight, victim to nuclear fever.

The atomic age is associated in the public mind with Hiroshima and Nagasaki, Nevada tests and Los Alamos research, and the development of nuclear power. Much of the uranium that has fueled these pursuits has come from the San Juan basin in New Mexico and Colorado—half of the uranium in the country comes from this area. The Los Alamos Scientific Laboratories were located in New Mexico to be near the source of uranium for atomic bombs and reactor fuel rods.

Unfortunately, uranium mining and processing uses vast quantities of water, scars the land, endangers miners, and leaves massive piles of radioactive mill tailings in its wake. Of the problems caused by the mill tailings, a Los Alamos scientist wrote, "Perhaps the solution to the radon problem [a highly radioactive element that is left after uranium processing] is to zone the land in uranium mining and milling districts so as to forbid human habitation." Unfortunately, for many people, the damage has already been done. Half the uranium in the Southwest is underneath Indian land. Native Americans have occupied much of the land in question for centuries, and regard the Earth as their sacred mother.

HUNDREDS of years before the advent of modern uses of uranium and its kin, a medieval physician noted that Bohemian miners were subject to a mysterious and fatal lung illness; in the 19th century it was identified as lung cancer, at the time an uncommon disease. By the 1930s it had been proved that lung cancer was an occupationl hazard of uranium mining. Mines are very dusty; microscopic radioactive particles, particularly radon, a gas, attach themselves to dust and are inhaled. Once in the lung, they sit there, emitting radiation. In ten or twenty years, the former miner may be dead of radiation-induced lung cancer.

Many of the first uranium miners were Navajos. Today, 20 out of 100 are dead of lung cancer, in a population where the disease had been virtually unknown. Not one received compensation, nor have their survivors. The chairman of the Arizona Industrial Commission, which regulates workers' compensation, said in response to a Navajo request for compensation, "This is not welfare, lots of things cause cancer, Indians have high rates of lung cancer anyway, don't they?"

According to Dr. Joseph Wagoner, who has studied uranium miners since 1960, the dangers had been well known and widely published by 1948, but unsafe conditions continued in the mines owing to a political, industrial, and military coverup. A study of 3,500 Caucasian miners revealed that more than 200 died of lung cancer, when 40 would have been expected. "We now have an epidemic of . . . monumental proportions on our hands," Wagoner said. Although the situation in the mines is better now, miners still have a 100 percent greater chance of dying from lung cancer than the general population. He fears that the "we need energy, to hell with people" attitude means "what we don't do today we'll pay for in 30 years."

THE past decade has seen uranium fever sweep the Southwest with renewed vigor. The cost of a pound of uranium has jumped from $6 in 1972 to $55 in 1979. The nation's program to reduce dependence on foreign oil via nuclear power means more mines, more mills (processing plants that convert raw ore into yellowcake, a concentrated uranium oxide), and more mill tailings. Currently, 16 mills in the US process 10 to 15 million tons of ore annually, producing almost eight million tons of tailings. In addition, poorer ores will be exploited as deposits are depleted, leaving a higher proportion of tailings for each pound of useable uranium.

Uranium represents less than one percent of the ore that is removed from the ground and processed. Considerable amounts of non-uranium radioactive materials, such as thorium, radon, and radioactive lead, are left behind. In fact, 85 percent of the radioactivity remains after the ore is processed.

The Nuclear Regulatory Commission (NRC) for years asserted that the effects of radon emitted by tailings piles need only be considered for one year. These estimates are now being revised to 80,000 to 100,000 years. In 1978, the NRC admitted that new studies indicate radon releases *increase* with time.

Mill tailings in Grand Junction, Colorado were found to be releasing three times more radon than when dumped ten years earlier. Not surprisingly, Mesa County, where Grand Junction is located, has a rate of acute leukemia twice that of the state as a whole. An NRC official stated, "The possible health significance of radon releases was not immediately recognized. The extent of the radioactive releases from the so-called 'front end' [mining and milling] of the nuclear cycle has been persistently underestimated."

A Department of Energy (DOE) report on nuclear waste management added to the toll: "Based on the correlation observed between exposure to radon and other radioactive products and the incidence of lung cancer in uranium miners, the risk of incurring lung cancer is about double the norm for populations living in close proximity to tailings." A writer in *Nucleonics Week* estimated that radon from mining and tailings would cause a human death for every 20 kilowatt-hours of electricity produced by a nuclear power plant.

THERE are about 140 million tons of tailings piled around the country, most in the Rocky Mountain states. These are huge, dusty heaps up to a mile long and 70 feet high. They are active pollutants for hundreds of thousands of years, their poisons dispersed over hundreds of acres by wind, rain, snow, and erosion. At none of the 22 inactive tailings sites in eight western states

Top left: *Leonora Sarricino near her home in Paguate, overlooking the Jackpile open pit uranium mine.* Bottom: *View from access road of Jackpile mine.* Right: *Ned Yazzie, paralyzed in a uranium mine accident, was given uranium tailings to use as a cement mix when he built his home. Photos by Preusch/Barry.*

are there safe conditions for long-term storage. Until the '60s, the Atomic Energy Commission encouraged people to use tailings as a construction material. That plan was dropped when health officials noticed that the occupants of homes and schools built from tailings had a high incidence of cancer. (Again, most were Indians.) Now DOE is planning to bury all the existing piles to prevent radiation from escaping—at a cost to the taxpayers of $200-300 million.

One way to prevent the escape of radioactivity is to cover the tailings with water. However, the dams that retain tailings ponds often break. An NRC report found that dam failure accounted for almost half of the 14 tailings spills between 1959 and 1977.

For example, the day the Church Rock, New Mexico mill was licensed in May 1977, Friends of the Earth and the Natural Resources Defense Council filed suit because environmental impact statements hadn't been prepared on the mill and disposal site. In July 1979, the Church Rock dam, considered the best of its kind, failed, and 1,100 tons of tailings and 100 million gallons of radioactive water poured down the Rio Puerco, becoming the largest radioactive waste spill to date in the country (see NMA, December 1979).

By virtue of the unique relationship of the Bureau of Indian Affairs with Native Americans, leases were sold to various corporations, such as Mobil, for the purposes of uranium exploration and mining, often without the consent or knowledge of the Navajo owners of the land. "It's more than a matter of continued exploitation of our remaining land and resources," said John Redhouse, of the National Indian Youth Council. "It's also an issue of spiritual and physical genocide."

A GROUP of 92 Indians and FOE have filed suit in US District Court over uranium mining. Known as *Peshlakai vs. Schlesinger*, the suit seeks to require the defendants (DOE, EPA, NRC, the Department of the Interior, the Department of Agriculture, and the Tennessee Valley Authority) to "comply with the National Environmental Policy Act [NEPA] by preparing national, regional, and site-specific environmental impacts statements" and to prevent the involved government agencies and private corporations from taking further actions until they have complied. The suit would also "require defendants to rescind and reconsider" land leasing and other actions already begun without compliance with NEPA.

The suit claims that "the present and proposed uranium development in the region directly offends the cultural practices and religious beliefs of the Navajo." The plaintiffs claim exploration has destroyed grazing land and killed livestock. Trees, water, and land have been damaged, perhaps irreparably, by drilling and resultant erosion. Sacred areas have been razed, and the influx of Anglo workers threatens the Navajo way of life. The mining process' reliance on water could make it undrinkable and lower the water table 1,000 feet for up to 50 years, making the area uninhabitable. The traditional Navajo would be physically, culturally, and spiritually displaced, as well as threatened by cancer. ☐

CRUEL WATER

(Tune: "Cool Water")

All day we face uranium waste that's filled with thorium daughters—cruel water;
The Church Rock spill came down the hill and lingers still, in water—cruel, queer water.
Listen Uncle Sam, that's a devil not a dam, and it broke and spread the land with water;
Sam can't you see that uranium company? The dam held their debris in water—
cruel, queer water.

The nuclear mill that made the spill spreads cancer still, with water—cruel water;
The river plain dries out again, the winds spread pain, from water—cruel, queer water.
Listen Sam again atomic dust is plumb insane it'll blow from here to Maine from water;
Sam don't you know that plant should close and nukes must go, for water—
cruel, queer water.

New Mexico to Arizo, the tailings flow, in water—cruel water;
The Rio Puerco joins the Colorado, and Californ-i-o drinks water—cruel, queer water.
Listen Uncle Sam if you do not give a damn you're a devil not a man on water;
Close down the place, the tails efface, they're your disgrace to water—
cruel, queer water!

—*Doug DeNike*

Rio Puerco Update

United Nuclear Corporation's uranium mill in Church Rock, New Mexico, was closed for five days for violating the terms of its interim use plan. The plan had been developed after the tailings pond dam at the mill's waste disposal site broke last July, spilling enormous amounts of radioactive material into the Rio Puerco.

The New Mexico state engineer closed the mill on November 9 after the state determined that UN had allowed the liquid to come within 150 feet of the face of the dam. The mill reopened on November 14 after the violations were corrected, but water samples taken from nearby wells showed high levels of dissolved solids and acidity.

United Nuclear has been operating the mill tailings area under the interim plan since late October, when it first reopened after the spill. Under the terms of the interim plan, the company must come up with a second phase plan when the existing site is full. UN's original plan—raising the height of the existing dam (the one that failed)—was rejected by the state. The Nuclear Regulatory Commission's "prime option" for the siting of uranium mill tailings, is now underground deposition. —*I. A. F.*

United States Air Force

Stephen Johnson

Ted Orland

AT MONO LAKE

Stephen Johnson

STARTING IN MARCH, a spectacular collection of photographs will begin a tour of the West. The pictures (all taken at or near Mono Lake, a seriously threatened desert lake in eastern California), were contributed to the show by the photographers, who include Ansel Adams, Brett Weston, Cole Weston, Philip Hyde, and many others.

Bookings through July 1980: Stephen Johnson, Friends of the Earth, 124 Spear Street, San Francisco, California 94105; after August 1, 1980: Western Association of Art Museums, 270 Sutter Street, San Francisco, California 94108.

Philip Hyde

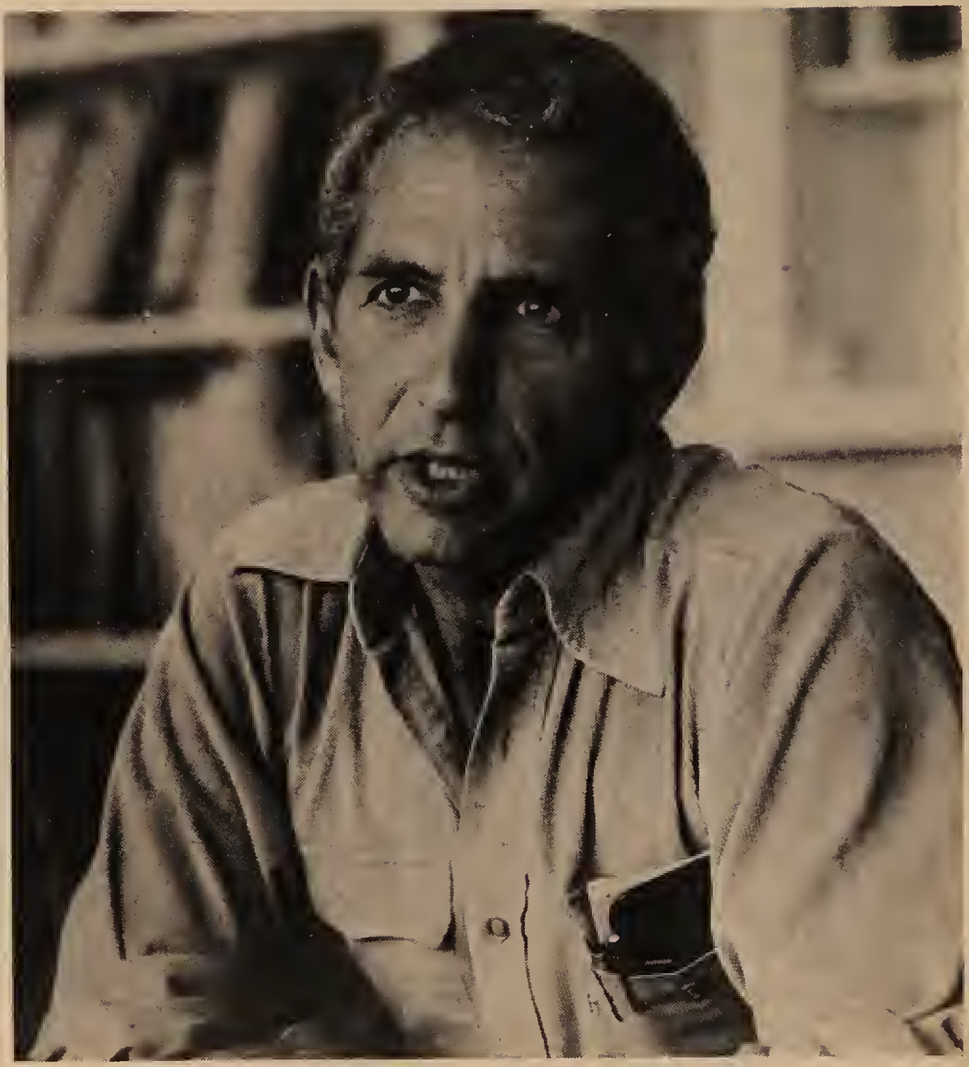


photo by Robin Freeman

A Conversation With Daniel Ellsberg

by Robbie Brandwynne, Andrea Entwistle
Robin Freeman and Steve Rauh

Most spectacular and probably most important of *The New Yorker*'s many achievements was its entire issue, August 31, 1946, devoted to John Hersey's account of Hiroshima. In its own way the Sierra Club San Francisco Bay Chapter's newspaper, the 40-year-old *Yodeler*, has made a similar contribution. Its January issue tells about the greatest environmental threat of all—the thousands of Hiroshimas that may still lie ahead. Half the issue is a conversation with Dr. Daniel Ellsberg held last October, before Iran and Afghanistan. The violence in those countries has made the conversation all the more pertinent. Here it is, for the broader, if not larger, audience of *Not Man Apart*.

There will be no joy in reading it. There may well be no joy anywhere, or life to express it, if the terrible consensus the great powers are stumbling into is not headed off. There is no more critical time to think clearly than when it is hardest to do so, like now. As Richard Barnet told scientists in the session, "Ending the Nuclear Arms Race," at the January meeting of the American Association for the Advancement of Science in San Francisco, "No nation can increase its security by lessening the security of its opponent." The great powers are doing that to each other, and to us.

Dr. Ellsberg decided, at the time of the Pentagon Papers, that his own freedom was insignificant when measured against the global peril his particular profession made uniquely clear to him (see sidebar). He became controversial, and people whose wisdom is tiring find it easy to dismiss the controversial. We cannot afford to dismiss this man and this controversy. His kind of knowledge is essential to the effort to uncouple the world from the nuclear threat. Surely no one will argue against sparing the lives of the half billion men, women, and children the full nuclear-weapons exchange would cost initially. Almost no living thing would survive the protracted consequence—to the ozone barrier, for example, damage to which, peaking a year after the exchange, would let ultraviolet radiation blister a person exposed 40 minutes to the sun, and preclude the growth of crops (according to a State Department briefing urging environmentalist support of Salt II).

Because the U S has chosen to emphasize nuclear, not conventional, weapons, it is easy to see, from what follows, the temptation for the US to rely upon nuclear threats. Such threats are already being made, without attribution, by US officials, referring to probable US responses if the Russians move beyond the borders of Afghanistan. "Yet in the current context," Dr. Ellsberg comments, "the dangers of making such threats, in setting an example for others and shaping our own plans and responses, are now even more ominous and more imminent than before." He adds: "The Russians, by their massive aggression in Afghanistan, take on heavy responsibility for the further increases in the nuclear arms race now likely to ensue. Yet that arms race will not end aggression or armed conflict, and it is more urgent than ever to recognize that threatening or initiating nuclear war is not even part of the answer to the challenge it poses."

Dr. Ellsberg's sworn testimony in his Rocky Flats trial adds three important elements not covered in the conversation reprinted here: (1) The neutron bomb lives after all. The strategic reasoning behind it is that it is only for first-use—i.e., initiating nuclear operations. (2) US nuclear weapons were placed, without Japanese permission, in Japan and may still be there. (3) Authority to launch nuclear weapons has been delegated, under certain circumstances, by at least three presidents (Eisenhower, Kennedy, and Johnson) to top generals and admirals, who have delegated the authority in turn. Such delegation is still likely to exist, *de facto* at the least.

Friends of the Earth have sought in several ways to obviate nuclear proliferation and the final war, lest all other environmental concerns become academic. We have continued our regular conservation work too, assuming as we must that proliferation will be ended. We began with our 1970 Vietnam advertisement, "Ecology and War." We have repeatedly warned about the consequences of the US compulsion to have the grossest national product of all. (Our five per cent of the world's population still wants one-third of all the world's resources, which led a black attorney to say in Michigan recently, "Many countries are beginning to think they can't afford the United States any more.") We have put together our *Eco* at many international conferences, including the UN Disarmament Conference in New York. In addition to our other virtues, we have Amory Lovins. His brilliant synthesis, *World Energy Strategies*, blossomed into his world-famous *Soft Energy Paths*. This led to IPSEP (International Project for Soft Energy Paths), which now gathers and disseminates information in some 70 countries about FOE's international alternative to nuclear proliferation and annihilation.

Awakened by Dr. Ellsberg, we can move toward acceptable, sustainable strategies that can spare the earth the thousands of new Dachaus and Hiroshimas that are otherwise too imminent. The atom in a fist and the atom in a glove are still indistinguishable, and the US can lead in ending the export of nuclear technology to nations shakier than our own by foregoing it here. We have let the atom become our Maginot Line, and we will not correct that unforeseen error with more reactors and the MX Missile, which amounts to putting the Maginot Line on AMTRAK.

Each of us represents total success in the miraculous passing forward of the essential information of life, from its inception on earth some three and a half billion years ago. A tiny bit of each of us now alive is that old. That is time enough for us to have learned how to handle our most important heritage, life, better than we do. That experience, in each of us is what we now, as never before, need to help each other apply. Until they back off, the great powers hold the world hostage. Dr. Ellsberg, and his example to us, can change that.

—D.R.B.

Daniel Ellsberg was born in Chicago April 7, 1931, attended Harvard College 1948-52 (B.A. summa cum laude, Economics; Phi Beta Kappa), King's College, Cambridge University, 1952-53 (Woodrow Wilson Fellow), and received his Ph.D. from Harvard in 1962. He served as strategic analyst for the RAND Corporation from 1959-64, 1967-70, having started there as a consultant in 1958. He provided the Pentagon Papers to the US Senate Foreign Relations Committee in 1969 and later for publication in the *New York Times* in 1971. (Charges against him for this were dismissed in 1973).

As a government consultant he reached a rank equivalent to that of major general and studied in particular the structure and content of U.S. strategic war plans—(nuclear war plans)—and Command Control of Nuclear Weapons (the nervous system for armed forces communications, command posts, and decision procedures). In 1961 he was assigned the task of writing the Kennedy Administration official guidance, top secret, to the Joint Chiefs of Staff for the strategic nuclear war plans. His draft was signed and issued by Mr. McNamara as a directive to the Joint Chiefs, and remained the basis for strategic planning through the early '60s.

He was arrested for civil disobedience at Rocky Flats and again faces a jail sentence. The event is described in the book, *A Year of Disobedience* (Boulder, Colorado, 1979), which includes also the testimony of Dr. Ellsberg's older son, Robert, testimony which brought so much applause that the judge cleared the courtroom. Robert's testimony included this paragraph: "Rocky Flats is the Auschwitz of our time. Behind that barbed wire and those locked doors, intelligent, decent family men in their white suits and their security badges are implementing the technological preparations for the Final Solution to the Human Problem. In each bomb prepared at Rocky Flats is another Holocaust—perhaps for the children of Moscow, Peking, Hanoi—those who build them don't know." Then he quoted the townspeople who were finally forced to tour Dachau at war's end: "We didn't know—we didn't know what was in those boxcars—we didn't know what came out of those chimneys."

Steve Rauh: The environmental movement is concerned more and more with social questions. Thoreau merged social and environmental thinking in his writing. Now the two seem to merge over the question of nuclear power. That issue will determine the direction of our society. Could you explain your concerns about the nuclear question?

Daniel Ellsberg: I am primarily concerned with nuclear weapons.

Rauh: What are the roots of your concern?

Ellsberg: My concern came first from reaction to Hiroshima and Nagasaki when I was 14. I have always been very concerned about our surviving nuclear weapons. 20 years ago I was working for the Rand Corporation in what I saw to be the immediate problem of deterring a Soviet attack. I was worried about what we were then led to believe was a great missile advantage of the Soviets—the "missile gap." It turned out to be a hoax. But by the time that was agreed upon, even within the government, it had served its purpose of spurring an immense buildup on our side.

At that time I worked in the field of command and control of nuclear weapons which included looking at provisions for unauthorized action and preventing accidents with nuclear weapons. It is an enormous problem which has been overlooked by environmentalists, pretty much because it has been classified and there isn't a wealth of information available on nuclear weapons' accidents. My main work, though, was on nuclear war plans—strategic nuclear war plans. Our plans in the '50's and early '60's reflected awareness by the military—not shared with the public or even Rand—that we were vastly superior to the Russians in our strategic nuclear weapons.

These plans essentially contemplated first-use of nuclear weapons by the U.S., in other words initiating nuclear war by the United States. Presumably this would occur in a context where there was already a conflict going on—one which we had not started, a conflict not involving nuclear weapons. At that time the Eisenhower administration premised our plans on making up for the United States' deficiencies in nonnuclear weapons, in Europe in particular, but not only (or most likely) in Europe, on our willingness to threaten and if necessary initiate a nuclear war in which we were greatly superior. Such a war promised to be devastating, certainly to Europe and large parts of the world, despite our superiority. We did make such threats a number of times; all of them were kept secret from the public.

But even more ominously than that; if US forces should find themselves in direct combat with Russian troops anywhere in the world, regardless of how this had come about, our plans proposed to launch an all-out nuclear strike against the Soviet Union, with all of our weapons, as fast as possible, hitting every city in Russia and China as fast as we could along with military targets. In other words, in 1960 and '61 I was reading war plans that prepared for the initiation of all-out nuclear war by the United States—a nuclear first-strike against the Soviet Union—arising out of some local conflict, as our only, invariant and inevitable response to direct Russian involvement. The Joint Chiefs of Staff calculated that we would cause 325 million deaths in Russia and China alone, not including deaths from fall-out from our strikes that would sweep over all the adjacent countries.

And when you added in the Russian retaliation and the European weapons—you were talking about a war which would not involve less than 500 million deaths. These were American plans for a holocaust on the scale of 100 compared to the German holocaust; the deliberate incineration of women and children and cities, of course with irreversible effects on the ecology of the whole earth. Taking into account the ecological effects, on the ozone layer and a great many of uncalculated ecological effects, you might well destroy all life or most life in the northern hemisphere and conceivably end all life on earth.

I thought then that I was reading how the human species was preparing to extinguish itself. There are other ways it could happen, but it seemed that we were putting the most preparation and money into arranging this way of extinguishing all life on earth. It seemed likely to come about before some other way.

I presume this planning is still going on and the immediate question is why, today, 20 years after the missile gap buildup, are we going for another major increase? Granted, we are no longer the only major nuclear war threat—the Russians also have a massive capability now. But that doesn't explain why we are building up. On the contrary, it would seem that to add to our nuclear weapons would be less promising than before, since the Russians capability to retaliate against us is now vast and we can't eliminate it. And yet even if SALT is ratified, Carter is talking about an increase in warheads, the MX missile and the Trident that will add thousands of warheads. We have 9000 strategic warheads now.

Robin Freeman: Is the nuclear buildup a psychological phenomenon?

Ellsberg: I think not predominantly. Obviously in addition to whatever psychological motives there are, there are also economic motives, jobs, and profits. But I think that it is mainly an effort to try to regain the kind of supperiority we had in the late '50's and early '60's to enable us to make the kind of threats that we were making all through that period.

Freeman: That level of government is used to absolute control and they don't want to give it up, is that it?

Ellsberg: They have lost the complete monopoly of nuclear threat capability that they had for 20 years—from '45 to about '65—with the Russian buildup in the late '60's. Now there is a position, as the administration calls it rather defensively, of "equivalence", and that is actually a fair description of what we have. They are defensive about it because some of their old colleagues from the Defense Department are saying 'no, it is inferiority.' That again is a hoax, as great as the missile gap was a hoax. The Russians can't get a superiority against 30,000 warheads, and in particular against the thousands that we have at sea, which they can't get to at all.

Andrea Entwistle: This hoax (I am trying to get it clear)—was it perpetrated by the Russians?

Ellsberg: No, by us. That is a good question. The Russians actually played into it by cooperating with us. Krushchev chose to save money by bluffing, by implying and even saying at times that he had a big missile force when he didn't.

Let me be specific about some of these things because they certainly aren't familiar. People know that from 1958 to 1960 there were claims of a missile gap in favor of the Russians. No one has heard what the actual figures were. The Russians were predicted to have, as early as '61, several hundred missiles rapidly going to a level of 500 or more. We had, in 1961, 40 Atlas missiles with more coming. We had two Polaris submarines by the end of the year for an extra 32 missiles, 2000 intercontinental bombers and about a thousand tactical bombers capable of reaching Russia. The Russians had less that 200 intercontinental bombers. The fear was that against our 40 missiles, and targeted against our small number of Strategic Air Command (SAC) bases—the Russians would be able to launch a surprise attack with 150-300 or more missiles and wipe them out all at once. That led to an airborne alert, which meant that we kept a number of planes in the sky for very long missions to protect them against missile attack, and we took another measure in deploying short range missiles around the world.

What the Russians actually had in 1961 has never been officially revealed, but I have talked about it publicly. It was top secret at the time, and no doubt still is. What they had was four missiles. Not 200 and not 500 and not what the commander of SAC kept saying they had—1000. He was wrong by 250 times—not 250 percent.

In the fall of that year after it was clear that the Russians did not have the missiles at all, President Kennedy decided to build 1000 Minutemen. No ignorance at all about what the Russians actually had.

When I did most of my working plans in '59, '60 and '61, before I knew the truth about the missile gap, I assumed that I was reading basically retaliatory plans. It was my understanding that there was no conceivable chance under which we would initiate nuclear war because the Russians were at the moment so much more strong. The generals knew better. They knew that these plans were not at all for retaliation because, on the contrary, the Russians had no ability to strike first. So all these plans were really initiative plans, first-strike plans.

Editor's note: Ellsberg talked about President Eisenhower and his "New Look" for the military, which meant a reliance on nuclear weapons. "A bigger bang for the buck," said Charlie Wilson, head of the Department of Defense (he also said, "What is good for General Motors is good for America").

Ellsberg: The idea of the Eisenhower "New Look" was massive retaliation, extreme reliance on nuclear weapons. Not mainly for retaliation against nuclear attacks but for the threat of initiating nuclear war to get our way in the world in place of other threats, whether economic or military. What most people imagine was that this was a kind of bluff, but that he really wasn't using the nuclear capability in any diplomatic way. That was wrong. Eisenhower writes in his memoirs that he not only made nuclear threats to the Chinese to get them to the conference table in Korea in '53, but he believes that they were effective in getting the terms that he wanted. Had any of you heard of that?

Interviewers: No.

Ellsberg: What I discovered, going back to Truman who made such threats in 1950, is that every term of every president has seen the serious consideration or actual threat of an imminent first use by the United States.

Editor's note: Ellsberg described in detail Truman's, Eisenhower's, Kennedy's and Nixon's nuclear threats or preparations as recorded in their memoirs and the memoirs of their associates: Korea, 1950; Korea, 1953; Indochina (Dienbienphu), 1954; Taiwan Straits (Quemoy), 1955 and 1958; Laos, 1961; Berlin, 1961; Cuba, 1962; Vietnam (Khe Sanh), 1968; and Vietnam (Nixon's explicit nuclear threats are reported by Haldeman 1969-72).

Rauh: How about President Carter?

Ellsberg: I should say up through Nixon, because we don't have any records on Ford and Carter; they haven't given us any papers. That record would indicate, though, that we haven't lost sight of that instrument. In fact, what I find most ominous about our build-up is that Carter has gone into production of the neutron warhead which is a weapon only for first use.

Freeman: I thought he stopped it?

Ellsberg: Well a lot of people thought that; I thought it for quite a while. It turns out that there was a closed session with a congressional committee in late April, 1978, where they decided to go ahead on the components (of the neutron warhead) at full blast, which is what they have been doing ever since October, 1978, with essentially no awareness by the public. There was an announcement at Rocky Flats by the manager that they were then producing the "components." They have a design in which a certain component can be added, in the field, minutes before the weapons are fired converting them from a quote "normal nuclear weapon"—if these things can regarded as normal—into an "enhanced radiation weapon." Since they don't put it in until just before it is fired they could say, up until they use them, we don't have a neutron bomb.

Freeman: There is a tradition of a use of nuclear threats from the end of the second world war.

Ellsberg: Yes, yes, from the time they were invented. Presidents have gone through periods when they had hoped that it was the answer to all their problems. Nixon, according to Haldeman, clearly hoped that when he came into office.

When they had the A bomb they thought that would be the answer to all their problems. They quickly discovered that the opponents don't back down that readily. One can't, quote, "rule the world" just with nuclear weapons as some of the more euphoric thought. But even though the H bomb is not what Stimson called the A bomb, "the master card," presidents believe that the threat of it gets them out of tight spots like Dienbienphu, Khe Sanh and Quemoy. And thus it is not merely for some abstract philisophical reason that each president refuses to issue a nuclear war. The Chinese have done that. The Russians have offered it repeatedly on a bilateral basis, but we have always refused to make that commitment.

Freeman: What is the mentality of an American president and the people around him that he wouldn't just say we won't use it first and negotiate without that card?

Ellsberg: The answer is implicit in the history that I gave. He quickly learns—if he didn't know before he came to office, and he probably didn't—that his predecessors had

found this most useful at various times. Remember it wasn't just that they used threats but that on a number of occasions the President felt, rightly or wrongly, that the threat had been effective. It is, as they see it, a record of success.

Rauh: What do the officials know?

Ellsberg: Well that we have been making threats like that all the time. I will give a very momentous example. The top three civilians involved in the decision to drop the atom bomb on Hiroshima and Nagasaki, Truman, Stimson and Byrnes, were all in favor of dropping it. Each one said later that they never regarded it as a moral issue at all, but only as a question of how fast could you get it over there and what target should you pick and so forth. Some people have found that hard to understand. But these three knew what the American public as a whole has never been quite conscious of: that they were already killing more civilians in single day raids over Japan with high explosives and napalm, than the atom bomb was likely to kill. The raid over Tokyo in March of 1945 killed more people than either atom bomb. They were quite conscious we were already destroying civilians—largely women and children and old people—in vast numbers. The atom bomb, to them, was simply a more efficient way of doing that.

At the onset of the nuclear age, the fact is that it was very easy for these people to order the atom bomb attack in the world they lived in, a secret world in which they knew that the raids they were ordering with non-nuclear weapons were more destructive than the atom bomb was likely to be. "It was no big deal," as Lieutenant Calley said about My Lai. And he was referring to the very same phenomenon—we were killing Vietnamese women and children in much larger numbers in a normal day's bombing operations.

That is the world that these leaders live in. So coming back to my earlier point, even when they are not directly at war they live in a world in which they know these proposals are made by their trusted subordinates; their predecessors have made nuclear threats; the preparations are all made, and Congress has certainly paid for the weapons. And so they don't have to be very unusual men to want to go on using these threats; they are not monsters.

We are seeing a pattern of behavior that has been around for a very long time—and I'll be more specific in a moment—now simply implemented with nuclear weapons. The kinds of threats that were made before nuclear weapons are now still being made with nuclear weapons, as if they were just another kind of violent machinery to be fitted into the same pattern of behavior. Now that in itself represents very gross insensitivity and ignorance on the part of these men. They do not conceive the difference in violence and destructiveness in these weapons. They don't face up to it—just as the members of the public don't. But it is true, probably, that in the long-run, we won't be able to get away from the risks of these weapons until we attack and change this basic pattern of behavior.

Robble Brandwynne: I call it bully behavior.

Ellsberg: The first pattern that I would fit this into is essentially that of imperial behavior; of trying to keep what they call order, law and order, but from the point of view of most people or of their victims or subjects, it is the imperial ruler's law and order—imposed as part of their hegemony. Very often it is oppressive and exploitive, but even if it's fair, it's very centralized power over which they preside. The threats that I've described, by the way, have all been against non-nuclear powers: in some cases they were people who in the past were colonized, the Indo-Chinese, the Koreans. Now we don't colonize them exactly, but we want to make sure that "our" people run the administration in those areas as in Taiwan or South Korea, or for thirty years South Vietnam. And to do that we back them up, as in the case of Vietnam with troops and marines, or in other cases, exclusively with threats of air intervention and ultimately nuclear weapons.

Freeman: That describes the super powers as a den of thieves, and to use the term loosely, there's a gentlemen's agreement that they are not going to blow each other up. They would rather threaten little people.

Ellsberg: Yes. It is understood that we have a commitment to our allies in Europe. That actually hasn't been the purpose of any significant part of our nuclear force. Because at any given time that aim could have been achieved—like the other publicly-proclaimed aim, deterring a nuclear attack on the U.S.—with a very small fraction of what we actually had and what we were actually buying in the way of nuclear weapons. So the bulk of what we actually had and were buying was always for a purpose that the officials never informed the public about, because they didn't expect they would get public support for it. They kept the public ignorant of the very possibility: that at some time in the future, as in the past, presidents might want to initiate, or threaten to initiate nuclear weapons against small countries that didn't have them.

Brandwynne: In a sense, the problem now is complicated because instead of one bully, there are two.

Ellsberg: There are two and more coming. I think that every country that acquires these will be confronting traditional adversaries, or victims, rivals or whatever, on their borders and elsewhere in comparison to whom they will now have a monopoly on nuclear weapons. And I think it's to be expected that they will follow our example, which they tend to know a lot better than the American public does; some of them have been on the receiving end of it, or have been channels of communication for these threats.

So they are much more aware than our public that the weapons are "usable." We have in fact used them: just as a gun is used when it's pointed at somebody, even if it doesn't go off. And, they know that. And I think they'll feel by our example that it's legitimate, certainly not without precedent, to make these threats themselves when they're useful.

Freeman: So this leads to the nth power problem, where someone is going to drop a bomb on somebody and no-one is going to know who did it. It's going to threaten everybody.

Ellsberg: That is a possibility. Or you may know, but that doesn't make it a lot better when you consider what you have to do about that. The world has been getting progressively more dangerous in the past than we realized.

Let me give a sense of what the danger is in physical terms. I mentioned earlier that we launched an airborne alert in '61, in response to the supposed Russian predominance at that time. Many people in the Air Force and the Pentagon were very proud of the missile gap hoax. They said there was no other way they could get enough tax money for the necessary weapons to maintain our superiority—which was the real issue. They said, now we have the Minuteman missiles and the B52's. At worst we wasted money. Why worry about it?

The first thing that we did at the time was the airborne alert. As a result of the airborne alert bombs began dropping out of the sky on the United States. These planes were not built for continuous flying. They were very high-performance aircraft for thermonuclear weapons built to be used for one round-trip. They're not built to be used for days and days at a time as they were for the airborne alert. So fatigue problems began to set in, including pilot fatigue along with metal fatigue, and wings would fall off, engines would fall off, collisions occurred and the bombs would fall. Now one I recal in particular, when I was at Rand, was on January 24th, 1961. A B52 crashed near its home base Seymour Johnson Air Force Base right near Goldsboro, North Carolina. In the course of crashing it dropped from the air one of its H-bombs, a 24 megaton weapon. It had six independent safety devices to keep it from exploding by accident. These devices are supposed to make it improbable that it should go off as being hit by a meteor in the city, if you've heard that analogy before. Five out of the six failed in the course of the fall and the crash. So one safety device protected it from a possible thermo-nuclear explosion. If it had gone off it would have released more explosive power than all the wars of human history—in this one bomb.

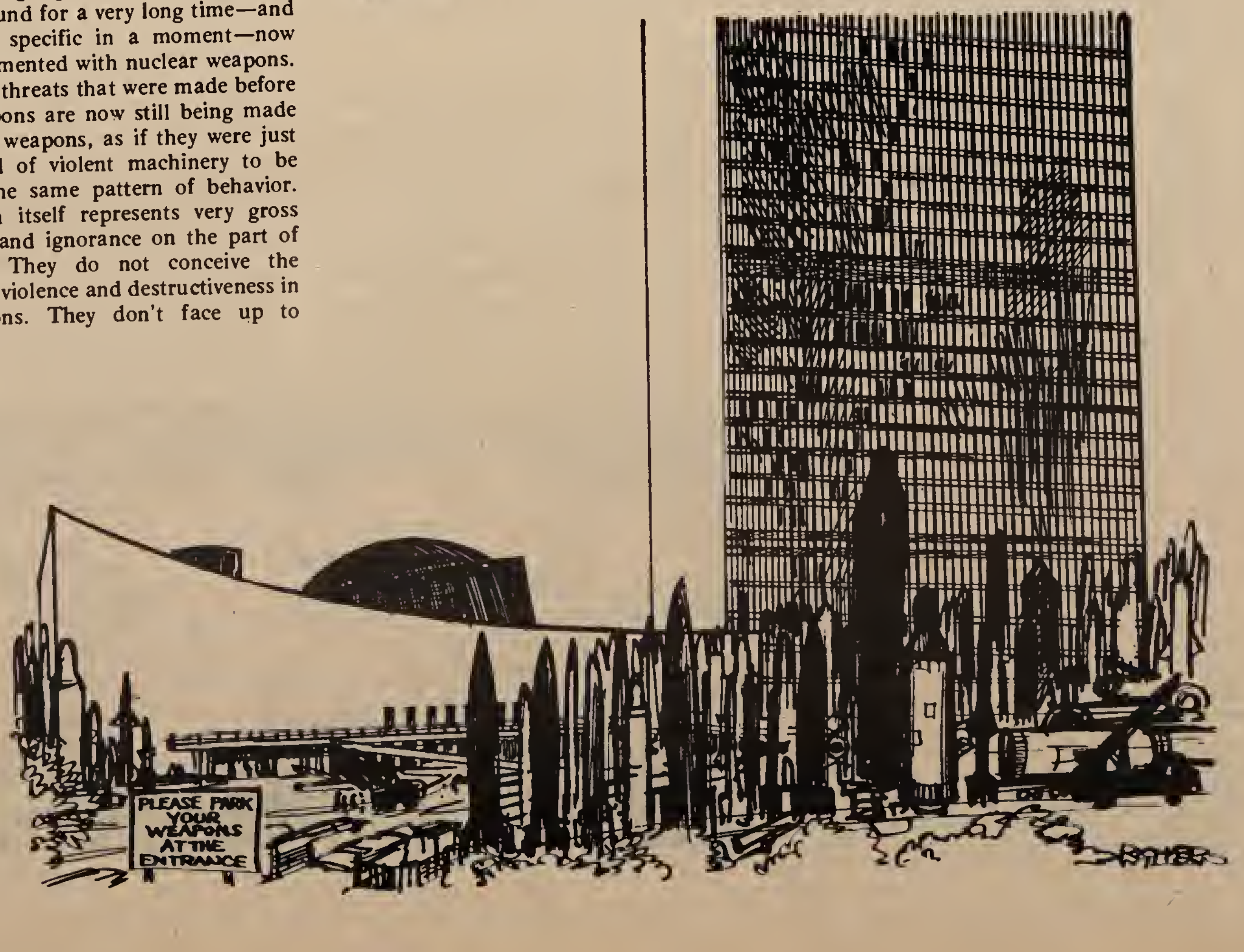
And I want to enlarge on that a little because, people interested in the environment can't really grasp the threat to survival that's posed by these weapons unless they have a very clear picture of the difference between an atom bomb and an H bomb. I've discovered that most young people have never known that.

The atom bomb at Nagasaki was a plutonium-implosion bomb—which works by fission of the atom. The thermonuclear H bomb works by fusion of hydrogen atoms, and is triggered by a uranium or plutonium-fisson bomb providing the heat and pressure to set off the thermonuclear reaction which can be a thousand times more powerful than the Nagasaki A-bomb. Today, most hydrogen warheads are only on the order of three to fifty times Nagasaki. But this is misleading because they can be of unlimited power. The thermonuclear reaction is normally used in these weapons to trigger a third stage which is again fission. If you fill a ship with U238 (a cheap uranimum isotope) and put an H-bomb in the middle of it and blow the whole ship up, there would be no limit to the explosion you could get with a thermonuclear reaction.

So the H-bomb has launched an era of destruction that is literally unlimited. The H-bomb that was dropped near Goldsboro was over a thousand times more powerful—aside from the radioactive effects of the fall-out—than the Nagasaki atom bomb which had the explosive force of 20,000 tons of TNT. In World War II we dropped two million tons of high explosives—including the two atom bombs. In Vietnam we dropped almost four times that; we were dropping a million tons a year by '67, seven and a half million tons in all from 1965 to 1975. That's a Nagasaki bomb a week for seven-and-a-half years. We killed most of the two million or so Vietnamese who died in those ten years. So we killed a lot of people. Two million is what Auschwitz killed.

But the H-bomb that dropped accidentally near Goldsboro and that was one safety device from going off had the explosive power of 24 *million* tons of TNT. That is, three Vietnams in one bomb. Or twelve World War II's in one bomb. In the 1960's a B52 normally carried two or four of those and B52's have dropped all four at various times—in Palomares, Spain, or again, in Thule, Greenland, all four bombs were dropped—at other times, one or two. In the '60's, in other words, we dropped more bombs on the United States and territories from American planes by accident, than the Russians had on ICBM's in 1961. We were then the only threat to our national security.

Now in those days—we had 600 B52's carrying two to four H-bombs, and fourteen-hundred B47's that could carry a couple plus about a thousand tactical bombers which could carry one comparable


PLEASE PARK YOUR WEAPONS AT THE ENTRANCE

bomb like that, capable of hitting Russia. In the face of four Russian ICBM's, we then added the thousand Minutemen, the 41 Polaris and Poseidon submarines and more.

Since I have given all these figures let me give one other to pin down the point I was making earlier: that almost none of these has been needed at any given time for deterrence of nuclear attack. At present, a single Poseidon submarine can carry up to two-hundred and twenty-four nuclear warheads—each warhead several times larger than the Hiroshima weapon. There are two-hundred and eighteen Russian cities with populations over one hundred thousand. So one submarine under the command of the captain can threaten every large city in Russia. We have thirty-one Poseidon submarines; and ten Polaris submarines which can hit one hundred and sixty targets. We keep twenty to thirty of those at sea all the time. If the Russians send their entire force against us, they can't destroy a single one of those submarines. And every submarine can threaten every one of their cities. This is the situation to which the President proposes to add the MX missile and the Trident submarine.

Rauh: Which already exists in the form of the Poseidon in the ocean.

Ellsberg: Yes and if deterrence is your goal the MX has no purpose at all. So then one asks, well, why is he doing this?

Freeman: Yes, what is the goal?

Ellsberg: I think for the same purposes as in the past; to bully smaller nations. You wouldn't need all this destructive power to bully a small nation if Russia did not exist. But most of the small nations that we've been opposed to are allied to Russia. So, if we want to be able to say to Russia: we may have to batter or even annihilate your small friend here, like North Vietnam, and you had better not get into the fray—you'd better stand back—then we can't have too many weapons in the balance. We want to be able to say to Russia, "Look, you don't want to mix it up with us because although you could hurt us disastrously, we are enormously bigger than you are." That's a better position from which to make these threats than the position we now have, which is parity. I find that the President's determination to acquire that capability shows that he wants to be able to make those threats. There is no other rational or strategic reason to want those weapons.

Freeman: Does being president force a normal person into that stance?

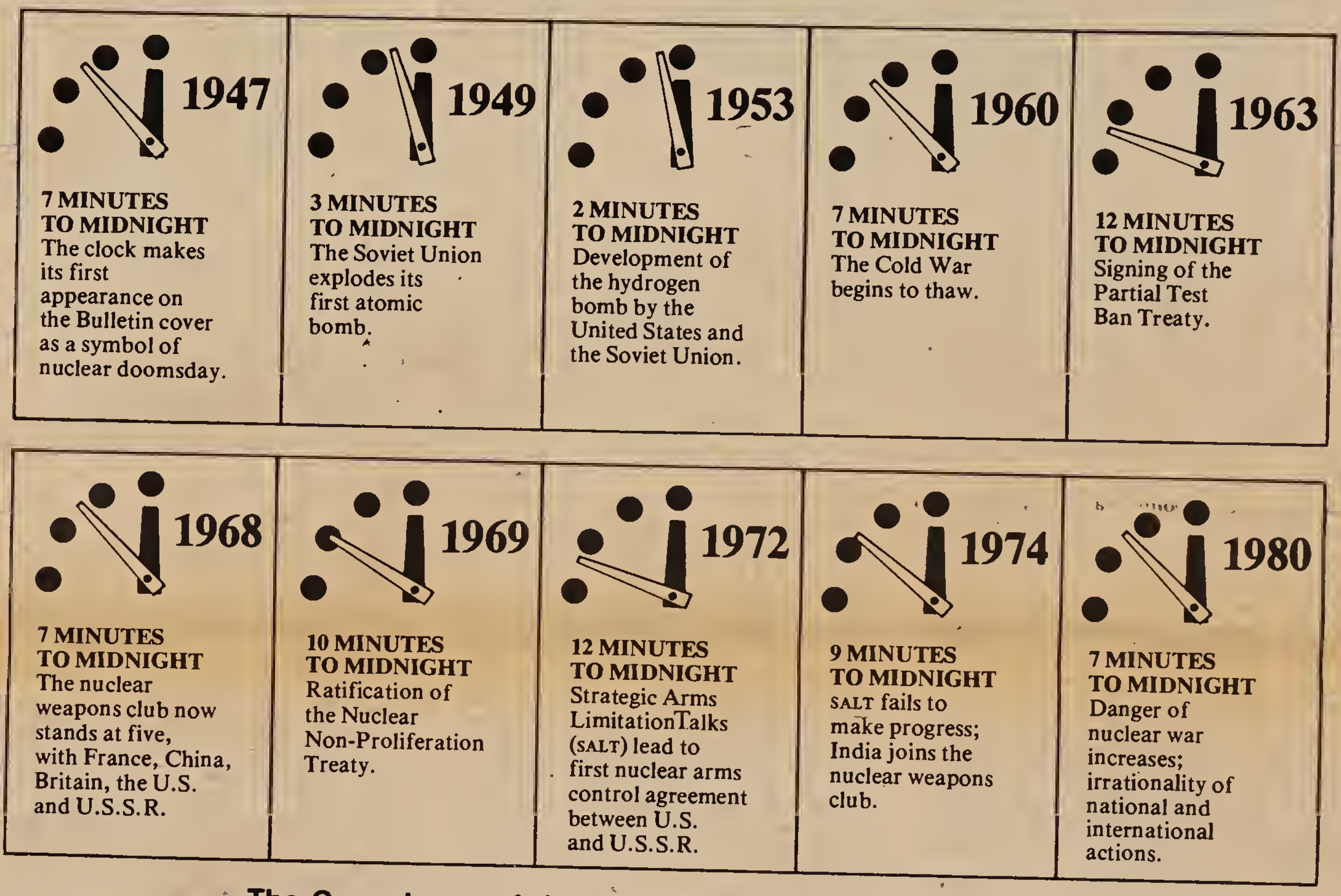
Ellsberg: Well, I've emphasized how normal these people are. But they aren't in every respect representative of the entire population. These are people whose determination to sit at the pinnacle of world power is not the same as your desire to do that, or my desire to do that. We are told about Carter's humility and his Christian commitment, and he is quite a prepossessing person, I find, on the whole. But we must also be aware of the reality that this is a man whose desire for vast, almost God-like power is extreme, very extreme. He's not like someone that you or I'd meet from day to day. One of the qualifications for his getting that job is an ability to keep it from showing, because, frankly, we wouldn't have elected any of these people if we'd understood realistically how willing they were to throw America's weight around in the form of nuclear threats.

Brandwynne: I think it is apparent from our discussion that the public has a massive denial going about nuclear realities. People are not hearing it.

Ellsberg: Well, it's true. Yet in the first instance, it's ignorance, certainly. If you try to understand why there is that ignorance one must not underestimate the role of conscious deception and conscious concealment. These things have been kept very, very secret. When I talk to audiences, after Vietnam, Watergate, and the CIA revelations, I don't encounter much intellectual resistance on these points—even though it's completely new to them. On the contrary, people in the public find it both possible to believe this pretty fast—out of the blue—and very disturbing. And they react in a way that's very encouraging to me; a lot of them start getting very active. I'm convinced that it's mistaken to say that they're so apathetic, but that really they are ignorant first of the scale of the threat and more importantly of the possibility of doing anything about it. Let me just go a bit

Let me go just a bit further on a question you raised earlier—how did we get this way? I think very plausibly you have to say that this pattern of imperial behavior or of great power bullying, both of its own people and of neighbors, and other people in the world—goes back as far as cities. It is as old as civilization, as it is usually defined, in terms of cities, irrigation, agriculture, writing: and along with these, slavery, heavy sexism, racism, imperialism, empire, kings, priests, armies and major inequality—a package which the anthropologist Stanley Diamond calls "civilization." All of these things come pretty much at once with the big surpluses that you get from irrigated-field agriculture. All these other brutalizing phenomena, the impersonal destruction and the authoritarian regimes come with them. They don't characterize every part of the world at the same time. But ever since the appearance of cities, for five-thousand years or so, there have been these phenomena in the world.

I think the machismo factor is an important element. Out of this same pattern of behavior in which centralized power is held by men, grew male culture, the aggressiveness, the rivalry, the competitiveness, the willingness to contemplate massive, destructive or constructive works—for impersonal causes and abstract causes. "Winning," the most abstract cause of all, is part of our socialization in modern-times, and that is primarily a male phenomenon. It would seem that this whole pattern has to be confronted and somehow changed.



7 MINUTES TO MIDNIGHT
The clock makes its first appearance on the Bulletin cover as a symbol of nuclear doomsday.

3 MINUTES TO MIDNIGHT
The Soviet Union explodes its first atomic bomb.

2 MINUTES TO MIDNIGHT
Development of the hydrogen bomb by the United States and the Soviet Union.

7 MINUTES TO MIDNIGHT
The Cold War begins to thaw.

12 MINUTES TO MIDNIGHT
Signing of the Partial Test Ban Treaty.

7 MINUTES TO MIDNIGHT
The nuclear weapons club now stands at five, with France, China, Britain, the U.S. and U.S.S.R.

10 MINUTES TO MIDNIGHT
Ratification of the Nuclear Non-Proliferation Treaty.

12 MINUTES TO MIDNIGHT
Strategic Arms LimitationTalks (SALT) lead to first nuclear arms control agreement between U.S. and U.S.S.R.

9 MINUTES TO MIDNIGHT
SALT fails to make progress; India joins the nuclear weapons club.

7 MINUTES TO MIDNIGHT
Danger of nuclear war increases; irrationality of national and international actions.

The Conscience of the International Scientific Community
The Bulletin clock is a symbolic warning of the lateness of the hour

The hands move closer to midnight

As the *Bulletin* begins its 35th year, we feel impelled to record and to emphasize the accelerating drift toward world disaster in almost all realms of social activity. Accordingly, we have decided to move the hands of the *Bulletin's* Clock—symbol of the world's approach to a nuclear doomsday—forward from 9 to 7 minutes before midnight. The blame must be shared, on a basis of rough parity or equality, between the United States—with its self-defeating propensity for the premature introduction of destabilizing new technologies—and the Soviet Union—with its stubborn insistence on the sanctity of large numbers of huge missiles as a counterbalance to technical sophistication. Whatever the rationale, both nations have been behaving like what may best be described as "nucleoholics"—drunks who continue to insist that the drink being consumed is positively "the last one," but who can always find a good excuse for "just one more round."

Contributing to our current malaise, as well as to the growing political instability which could eventually lead to the Third and last World War, are the approaching crises in the availability—especially, but not exclusively, in the so-called developed world—of sufficient quantities of needed resources at stable prices. Energy is, of course, the commodity that comes immediately to mind; but there are other essential resources, of minerals and food, whose scarcity or inequitable distribution will be more and more acutely felt in the decades to come.

These problems are extraordinarily complex; many of their aspects have been discussed in these pages, and will be further discussed in the coming months. However, our point in raising these issues with respect to the crisis of 1980 is to note that there is, in most cases, a short-term approach capable of buying the time needed to try to devise reasonable longer-term solutions to almost all of our resource problems. This approach hinges on *conservation*—the adoption of available means of stretching out the scarce resources in question. However, a ubiquitous characteristic of our era seems to be the inability of affluent peoples to accept even minimum restraints.

BERNARD T. FELD
January 1980 The Bulletin

In the short run we have to work to disarm the male power holders of the world of thermonuclear weapons and atomic weapons, as quickly as possible. I think we have to do that on a time scale far shorter than the one in which we could contemplate really changing the whole nature of world culture in these ways, or even the world power structures. Just as I thought it was essential to work to get the bombing of Vietnam ended, more quickly than one could imagine changing the power structure of the United States. I didn't know much about radical or revolutionary thought, coming out of the Rand Corporation and the Pentagon into the anti-war movement. But it seemed clear to me that whatever merits and whatever realism there could be in revolution, (and I've come to think there isn't much), that it certainly wasn't realistic to look at revolution in the U.S., in any sense of the term, as the answer to the Vietnam war. We just couldn't wait—the Vietnamese people would have ceased to exist long before major radical change could have taken place. It did prove possible to end the war. And the anti-war movement was crucial to that without any big change, and God knows there hasn't been any big change.

Freeman: So that's a change, within the normal context?

Ellsberg: Yes, that's right. Even though people say nothing fundamental has changed, it was important to stop bombing Vietnam. And it is of far greater importance to disarm the world-states of nuclear weapons—even if everything else remains the same, with all the wars and the famines and everything else. It's simply a precondition for addressing any of those other problems. I can't really believe that life can persist very long with the level of nuclear weapons and the dispersal of them that we have now achieved. That has to change, this is not a status quo that can be lived with or for long, lived in.

Our problem then is to reverse five thousand years of imperial culture, imperial, patriarchal culture based on warfare and some twenty-five years of thermonuclear weapons. That's the problem.

Ellsberg: During the second World War, on the basis of decision-making that was secret from every public, a number of countries began for the first time in the history of modern warfare, to accept as natural, legitimate, inevitable and practical, taking cities as targets. This included all their inhabitants, mostly non-combatants, the women, the children, the sick, the old. Thus destruction was indiscriminate in that civilians were the actual targets. The idea was to kill enough people to disorganize their industry, perhaps, but in any case to demoralize the population and bring about the collapse of their war-effort. And that, as I say, was a decision that was not taken democratically; it was never discussed publicly at all as a strategy. Officials in both England and America strongly denied to their publics that there was deliberate targeting of civilians. They described any civilian deaths as being accidental and inescapable as they went after military targets. When Truman announced the atom bomb, it was in a communique that said, "Today we have hit Hiroshima, a military headquarters in Japan."

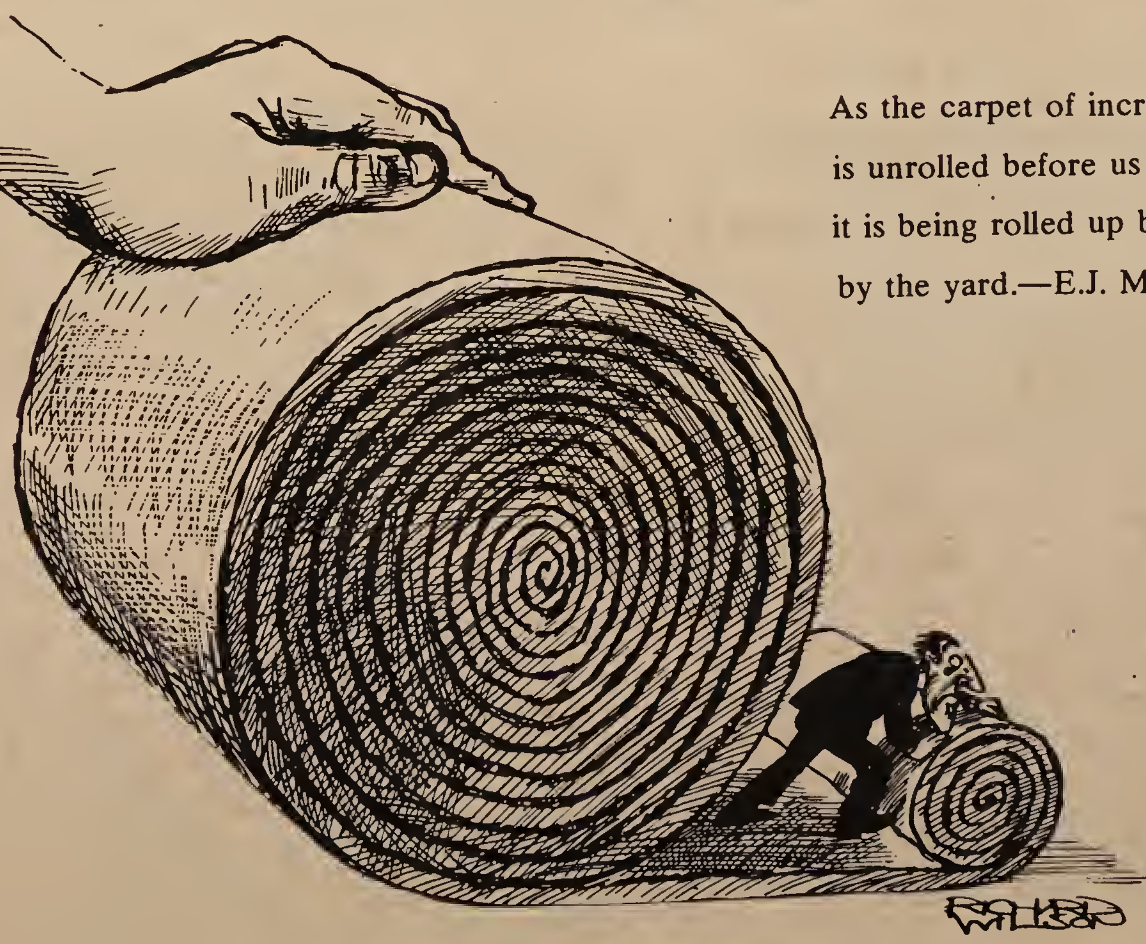
Now the H-Bomb goes really beyond the city as a target to destroy regions of the environment. You're talking now about a weapon that would have destroyed most of the ecology of North Carolina with lethal effects for half a million years if it had gone off accidentally. Just as a Harrisburg would have destroyed most of Pennsylvania if it had reached a core meltdown. Thanks to these weapons policies based on public ignorance and official deception, we have had our nuclear Harrisburgs already, with nuclear weapons. But the public doesn't know of them because they were kept classified. Later it comes out bit by bit, but nobody has put it all together and realized what the nature of the problem is. Unless policy has changed recently, they have never been willing to release the total amount of nuclear waste made in the weapons program. So it hasn't drawn the attention of the environmental movement, even though there is every presumption that it's enormously larger than the waste from nuclear energy.

Well, I'm saying that the same is true on the accidents. We had over thirty major accidents involving nuclear weapons in a possible nuclear explosion by '68. That is an average of one a year since Nagasaki, plus hundreds of what they regard as lesser accidents still involving a nuclear weapon that didn't come as close to exploding. And of course these things are transported, they're flown all the time. We came as close to a catastrophic accident in the Goldsboro case alone as Harrisburg came to a core meltdown—very close, beyond human control.

This will continue to happen in all parts of the world as these weapons are dispersed. The other countries are likely to have much worse safety devices—which are expensive and complicated—than we have. And some of ours fail nearly every time a bomb drops. They don't all fail fortunately. In a number of cases there have been high-explosive explosions. You see, the plutonium bomb which detonates the thermonuclear explosion itself is triggered by a high explosive charge, which compresses it. When the high explosive goes off which is not supposed to happen in the event of an accidental drop, it blows the plutonium all over the place, contaminating the area forever; you can't find every speck of it and every speck of it is carcinogenic, with a half-life of twenty-four thousand years. So, we've spread this stuff around parts of Thule, Greenland, Palomares, Spain and elsewhere.

(Editors note: We turned to a discussion of the history of democracy and the need for greater participation in our country's military policies.)

Ellsberg: Early in our country's history the rich found that they didn't have as much to fear from democracy as they had thought. If you handle the society right in terms of management, of media, of public relations and of growth and economics; and if you press issues of nationalism, which is the only unifying element in people's thought; and, at the same time you keep alive everything that will divide them by sex, by race, and by region so they can't get together on other issues, you can stay on top.



As the carpet of increased choice
is unrolled before us by the foot,
it is being rolled up behind us
by the yard.—E.J. Mishen

So you can extend the vote and live with it. Did extending the vote to women make the difference that people had hoped or feared it would? No. Still, I believe increasingly that greater democracy is the direction that offers us our only promise. But it isn't enough to have the small degree of democracy that we have in this country—even though I would say without hesitation, we have more in terms of procedural safeguards, public information and popular influence than practically any other large country. It's not enough, yet, to keep us from destroying ourselves and the rest of the world.

I am very hopeful about democracy because without it the war in Vietnam would still be going on. As Nixon keeps pointing out bitterly, it was Americans who stopped the bombing. And it wasn't Nixon or Carter or Ford. Against the protest of all these men in power, other Americans outside government (and some in government and Congress who were most responsive to the people outside the government) managed to end it. Without the amount of free speech that we have, the influence that people have and the ability to protest in civil disobedience without being exiled or killed; without these abilities I think the bombs would still be falling. This is one of the strongest proofs one can point to in all of history of the power of these approaches to control even foreign policy. But it did not protect the Vietnamese for thirty years: it took ten years of intense activity to bring that about. And even then it took a lot of luck. It was in no way guaranteed that the system would work in that fashion. But it showed the possibilities of using the same kind of approaches we used against the war to protect our whole environment and life on earth from destruction.

One could say the same about the processes of environmental poisoning and pollution, the exhaustion of resources and many other things. I am focusing on the nuclear weapons question because it could wipe us out very quickly.

A focus on thermonuclear weapons is regarded by some people as being a distraction from the general problem of war and of arms in general. Why focus on these particular weapons, when the other weapons kill too? But I think they're not in touch with the factor of scale here. I made the point earlier, that we dropped immense tonnage on Vietnam without using nuclear weapons, but one has to realize that a single, large thermonuclear weapon would have more explosive power, and in terms of fallout could have killed more people than died in Vietnam. These are weapons which kill two million if you drop them near two million people. They kill six million if you drop them near six million. It's partially a matter of how concentrated people are, but with the fallout they don't have to be concentrated. That's why measures like going to jail for entering grounds, or sitting on railroad tracks do not seem overwrought or inappropriate.

My son said, when we were on our way to jail together after being arrested in Rocky Flats on May 12th, 1978, that he had read of a camp in Germany where the occupied troops after the immediate end of the war had forced nearby townspeople to tour the camp, which they had lived near all this time but had never been inside. And they all said, "We didn't know what was coming out of the stacks and what was going along in those cars." My son said that people should have been sitting on those tracks at Auschwitz and Dachau even if some of them died for it. And he said, "People should be sitting on the tracks from now on outside Rocky Flats," the plant which produces all the components for thermonuclear weapons. We have thirty thousand warheads in America. Twenty-two thousand of them average the size of a Hiroshima or Nagasaki weapon. Nine thousand are strategic weapons from twenty to a thousand times larger. Rocky Flats is still producing three to ten a day. The MX and the Trident will increase our number of strategic weapons to twelve thousand, and, perhaps, to twenty thousand warheads. The Russians are doing the same. This process is not even included in the SALT negotiations. We are adding the MX and the Trident because we refused to include them in the negotiations.

Rauh: What can people do? The Sierra Club has traditionally stayed out of issues like this, just barely touching on non-proliferation. But the issue is much more serious than we have admitted. Not only do we need non-proliferation, but we need disarmament. What suggestions or thoughts do you have for the Sierra Club?

Ellsberg: We should not add any of the weapons Carter is proposing to our thirty thousand warheads. They are not needed for deterrence.

I would like to see a no-first-use policy adopted. I think it's not at all a mere symbolic or formal matter. I think it would have vast influence on our planning, our threatening behavior and our armament. We should accept the Russians proposal to commit ourselves never to be the first to use nuclear weapons under any circustances whatever. Nuclear weapons would not be a substitute for other weapons. At most, they would have no other reason than to deter nuclear attack. Most Americans think that is the case already, but they are wrong. And this would in fact be a major change in the status.

From that perspective one could begin to question why we need thirty thousand or whether that's ten thousand too many or twenty thousand too many. But you certainly would have destroyed the case for building more, for adding more. So no-first-use would mean no Trident, no MX, no cruise missiles, no neutron bombs—that's a program.

I have to say realistically, that I think the odds are very much against even the program that I've described succeeding in the next year or two. The momentum toward each of these disastrous additions to our arsenals, and the inevitable Soviet imitation, is very strong. The reception of the recent Russian proposal that they would dismantle some of their missiles if NATO would forego adding six-hundred new missiles to their inventory was very disheartening to me. Carter simply brushed it aside and said we will go ahead with our building first and then we will talk about cutting back. I believe what Brezhnev says; if we go ahead they are going to go ahead too. Our talks about cutting back will start some years from now in an environment where both sides have doubled their number of missiles.

Rauh: Do you think that there is going to be a major accident?

Ellsberg: Yes. First let me say right away, there have been major accidents. These happen not to have been regarded as major accidents. But you mean one in which an actual nuclear explosion occurs. Yes, of course, whether it's our or somebody else's. More and more countries are going to be flying with these things, transporting them. We've dispersed them all over the world. They are subject to capture, to sabotage, and to terrorist attacks, as well as accidents and deliberate use. So we're multiplying all these risks. As an immediate program we should stop all that.

People will say, "You mean unilateral disarmament?" But to forego a weapon that doesn't exist yet, like the MX missile, is not properly described as unilateral disarmament, or disarmament at all. Yet, that is the way it's heard all the time.

We're not talking about unilateral disarmament; the objective has to be a global disarmament. Nothing other that than will protect the human species. But it's got to start somewhere and as long as we're going up, we are not starting the process of going down. We cannot possibly induce other countries, starting with the Russians, to stop — let alone go down — if we keep going up. An it won't interfere in any way with our national security . . .

So it's a race, in which it's not at all guaranteed that the human species will be the winner. On the contrary, I think the odds favor that we will wipe ourselves out with the weapons that have already been produced, and with the behavior patterns that we have clung to so long. But I don't think that is the way one should bet with one's life. We don't have to use our lives for furthering that process. We can oppose that with some chance of success, as the Vietnam war shows. The movement will have to include all electoral activities, with an awareness that presidential elections never shortened the war by a day — time after time candidates were elected who seemed likely to end that war. And they always betrayed those votes. Congressional elections turned out to count for more. Even letter writing to Congress turned out to be very influential, although during the war I had assumed that that was make-work. That's why Nixon hired enormous numbers of fake letter writers in the course of the war to support his policies. And they look back on it as one of their most useful activities.

Brandywine: How about civil suits?

Ellsberg: Civil suits, yes, never explored sufficiently. Also, non-violent civil disobedience, not as a substitute for anything else and not as accomplishing anything by itself, but as an ingredient that stimulates people to address some of these problems in conscientious terms. And to alert them to the urgency of a threat that makes it appropriate for large numbers of people to take risks of a kind that they don't ordinarily take from day to day. Risks to their career and to their standing in the community — of opposing national policies, which is always risky, even in this country. But since it's less risky in this country than any other large country in the world, and probably more effective, I think that gives us a responsibility that Russian citizens don't have to the same degree. Their dissenters are the ones who disappear or are forced to emigrate. We don't have that excuse for passivity . . .

(Editor's note: Ellsberg talked about the fundamental assumption that we are more humane in our treatment of foreign nationals in war than, say Japan and Germany — which is wrong especially in light of our policies to destroy civilians. He pointed to the need for a fundamental change in which people learn to care for others and their environment without such care being assigned by some secular authority.)

Ellsberg: But, the truth is, as urgent as the current issues are, it may take changes of that more fundamental level before we achieve many of the "short range" technical goals. It may be that you can't achieve them in sequence like that, I'm not so sure.

Freeman: We're getting practical. We are gathering information here, that will go through the Yodeler. Maybe some of the 20,000 readers will read it. We don't know what people will do with this information. But we suspect they are going to do the same thing you did when you sat at the Pentagon and saw this and said, "Oh my god". We've still got millions of people we've got to get this information to.

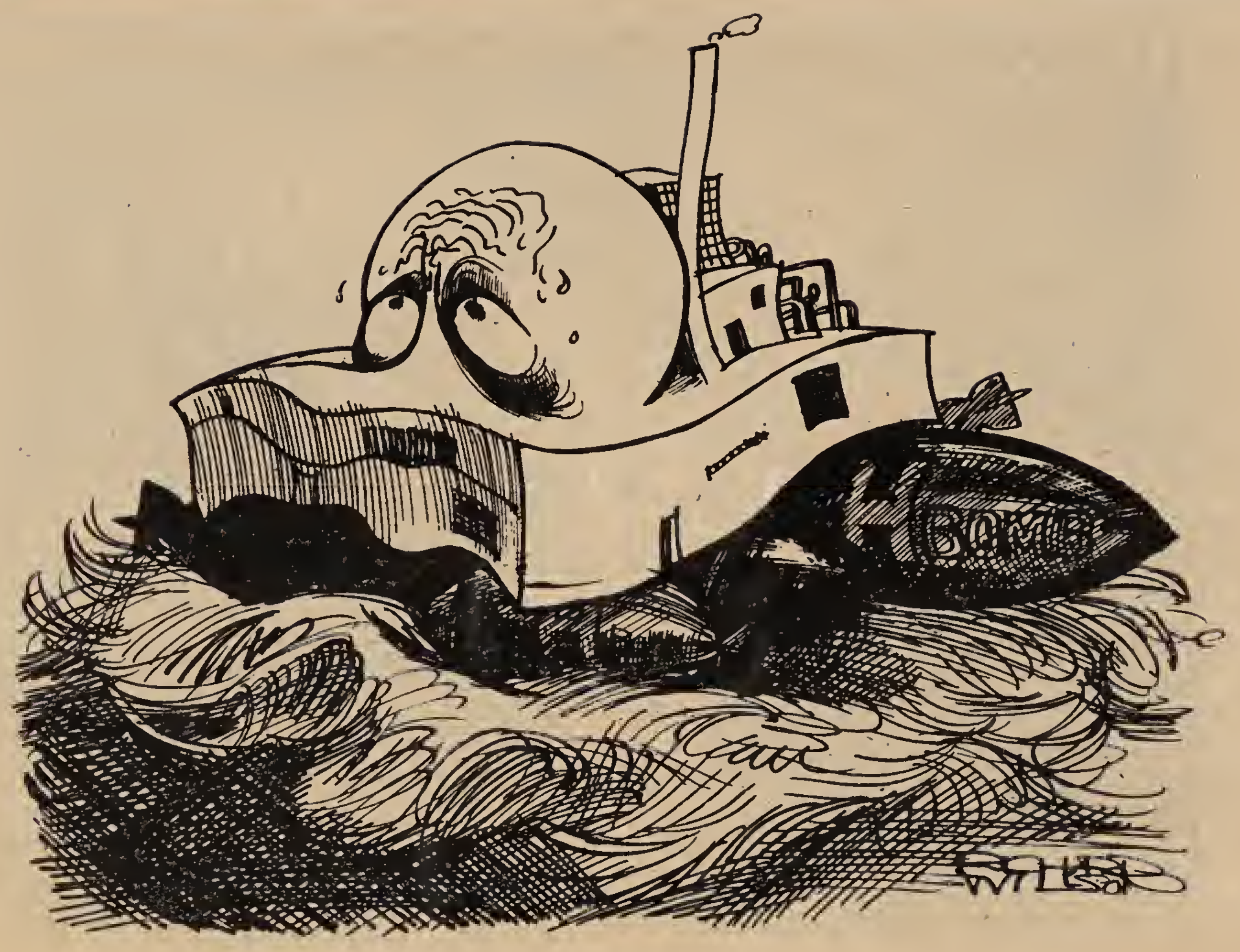
Ellsberg: I certainly agree with what you're saying. Spreading the information even in the most traditional ways of newspapers and journals, debate, is crucially important. If I believed that the mass of the population already had values like those of the men in power, for the last generation, I would think there was very little chance, because the information wouldn't help. I think that's not true.

We have the evidence that the men in power, on the basis of their polls and experiments, concluded that it wasn't true and that's why they lied and they kept these things secret. Going back one point, 20 years ago, it has just recently come out, Eisenhower directed Williard Libby of the AEC to fuzz up the issues. He said, "Try to keep them confused" between A and H weapons, in order that the public would not interfere with the testing at the Nevada test site which did produce significant fallout and endanger people.

I hoped that getting information out during the Vietnam war would meet a different response in the public than that same information had produced inside the government, and that turned out to be true. I think there is every reason to believe that the public, with this kind of information, will react, will weigh it differently from our officials and to some extent at least, will act on it.

There is another question which goes a little beyond information in the ordinary sense and that is the question, how does one communicate to other people the fact that they must change their lives or take risks or act? And that isn't just communication in the usual sense. It's misleading to think of that as just information. Empirically, it seems to take a personal example to make a very strong point: the example of someone who is changing their life or risking and acting in some committed way.

That is why I come back to the notion that to get people to do the work of publication; to get people to read it; to get the activities that you describe as disseminating this done; it's very useful to have this other ingredient that might seem quite unrelated; the example of committed actions of various kinds, whether they are risky disclosures by people, people risking their jobs, or civil disobedience and people going to jail. Because that motivates other people; it awakens their conscience and it doesn't simply convey information, it confronts them with the fact that perhaps their values need reexamination. Or their way of behaving doesn't have to be as passive, as complacent, as obedient as they have actually been to authority. That they must take the risks and the psychological strain of confronting authority. □



Entwistle: I think it's important to stress here for people that's what you did.

Ellsberg: Well, at Rocky Flats. Earlier, of course, I was indicted for the Pentagon Papers on charges that totalled 115 years. So, there's your risk. Rocky Flats seems like quite a holiday. I was up for only 3½ years, and that turned out to be useful to do, even as an example. But I was very conscious that I would never have thought of releasing the papers if I hadn't had the example of people who were going beyond demonstrating or letter writing.

I learned, like a lot of other people from the writing of Martin Luther King, Jr., and from Gandhi, and King himself learned from Gandhi, that to fail to resist evil is to be a party to it; is to be an accomplice to it. That's a very challenging unfamiliar thought because normally I guess the tacit response is that evil is something to be named and deplored, but in almost every case it's someone else's problem. Somebody else is responsible for doing something about it. But the notion that to be aware of it is to feel an obligation to act against it, to oppose it, is a very provocative attitude that gets you in a lot of trouble.

Freeman: How does that balance with posing positive examples?

Ellsberg: Showing that there are alternatives to war, as a way of resolving conflicts, would be very helpful. The people ended the Second World War with great hopefulness in institutions of world law. But in the euphoria of the nuclear program, the United States Government decided that we could act better as a government unilaterally. The cowboy approach-vigilante justice-was a little more appropriate to us because we were a one-man army. Depressing metaphor. But we didn't need the help of the other institutions; they would only tie us down. So we really moved away from all those notions of arbitration in world courts, or the UN as a world parliament.

Entwistle: And community?

Ellsberg: Community, that's right. So we get back to this point of how does one recognize and grow a sense of community. The big gestures in the past have often been subject to the limitations of considerable naivete as to just how sinister and ominous the activities of all these states were. As if people could just join hands across the ocean. It was kind of turning away from the reality of state behavior and state power.

If I were to quote the name of a pamphlet put out by a wide range of nuclear physicists in the late '40's about the atom bomb, I would be raising a slogan that seems totally discredited. The title was: "One World, or None." Have we not grown up for the last generation hearing "one worlder" as a term of contempt? But the world of unrestrained warring national states is not a world that can continue to exist, now that these states are potentially armed with nuclear weapons. It was compatible with human existence for several thousand years. It really isn't now.

And so this idea of learning a sense of community with other humans is crucial. But that alone will still not mobilize people in a way that's necessary unless they come to feel a sense of community with other non-human life and with the resources and the environment that supports life.

Freeman: In the environmental movement when something is about to disappear forever, we try to save it. This is important, but we need to be thinking 20 years ahead, 100 years ahead.

Ellsberg: Yes, can the world remain with population increasing and with concentrations of people in high density cities, relying on fossil fuels and high energy? Can this go on and yet avoid the nation state organization and the reliance upon it, and avoid the wars over natural resources as in the Middle East? Or does it follow that this more fundamental pattern of population causes our problems? I think it probably does. I don't think there are people who have the answer to these problems and can write it down in a book as to how to organize the population that we have in the world today into a more decentralized and more peaceful society, less reliant on high energy use. The models that we have of such a society are not only the neolithic but also the farm communities that ere similar to the neolithic ones in different parts of the world until recently.

I think we need a lot of creative effort along those directions. Those are the questions we should be working on to answer rather than the ones we are dealing with, such as how to base MX missiles. I think that our hope lies in a sense of community, both in a conscious sense and a latent a readily available sense. The sense of a broad community with other life, with other humans and with the environment as a whole is much more present in the mass of the public than it is in that relatively small number of middle-aged men who manage all societies: men who have fought for and achieved positions of immense coercive power that distances their concerns from the concerns of most people, and who see most people somewhat abstractly and subject to manipulation and to destruction as well.

We haven't really talked much about one final point I think I should mention. There is a sex difference in attitudes on these things, both of the nature of commnity, the importance of community and values in general. The difference is between men and women in the large, though not between every individual. It seems that the forms of thought which are most valued, most highly paid and most useful to power structures are forms of thought that men have been trained to excel in. Whereas the intuitive caring for life that is born of women, and for other forms of life, by analogy, comes more easily to women. Women are not all mothers and don't all want to be mothers, but unlike the men who also came from mothers, they are encouraged to identify with mothers. A complicated thing, but though we all have mothers, the idea of mothering is something that men are trained to put behind them at an early age.

Now, I'm not saying women as the guardians of the spirit of concern for life must limit themselves to that. But I am saying that there is a good deal of empirical evidence that right now attitudes questioning the state's purposes and especially questioning the necessity for wars and winning are shown, by polls, to be more common to women. But that doesn't mean that they act democratically on those values. (In the case of Vietnam that happened also to be true of blacks compared to whites, perhaps because, like women, blacks were not so inclined to accept as true and necessary the statements of white, middle-class males.)

Brandwynne: I think you put your finger on a really important point. Men are raised to put nurturing behind them and that's the break at which the hierarchical power, game oriented kind of personality moves away from the caring-for kind of personality.

Ellsberg: A lot of feminists that I've met as individuals are very uneasy or even hostile if you point to something like this, because they regard this kind of woman's trait as a way of keeping them in a less valued kind of orientation or attitude, discouraging them from acquiring the skills, analytical thinking and aggressive competitiveness that they need to acquire power to account for more in the world. But even though it suggests a trait associated with an inferior power position it nevertheless has something to recommend it. It is regarded as a way of keeping people in oppression; I understand that in terms of the immediate context. But it has a long run context as well. I think it has to be recognized first, that this more favored, "male" way of thinking and acting, to which the President appeals when he warns us against being a pitiful, helpful giant, is an attitude that does make for getting ahead—not just in U.S. or capitalist society, but in most centralized, industrialized, urbanized societies. And, second, it's going to kill us all . . .

Was it well advised for Israel to acquire nuclear weapons, as they undoubtedly have? One could say, "Well, given their problems and the state of the world as it is, that was a very, wise, and prudent, and realistic thing for them to do. And it might be what is preventing war, right at this point." And yet, it is not being part of a movement against nuclear weapons, it means adding their weight to the momentum of the arms race instead of to the opposition, and I think as you look at the longer run it doesn't look very wise.

I think Gregory Bateson, at the Regent's meeting, put it very well. He said, "If one is thinking about the security of one's life and keeping what you have . . . , it may be that for people of my age this arms race is the best way to protect what we have in the next 10 years, the remainder of my life. But I don't think that's true for my granddaughter's generation."

Rauh: Patriotism to Thomas Jefferson was the establishment of a society in which there was a continuing happy small community. He felt the best size for a democratic community was one you could walk across in an hour.

Ellsberg: I think what we're facing now is the truth in the assumption in Jefferson's time, that a country as large and centralized as ours now is can't remain a true republic. And it is also true that we should achieve democratic self-government.

So where do you go from here? I certainly want to see explored the possibility of great decentralization, great de-emphasis on national institutions as opposed to federated regional and local institutions. And a much greater sense that other nationals are not to be burned, boiled or shredded any more than we think it is appropriate for our own nationals to be cannibalized.

Author's note: We would like to thank the following people for volunteering considerable time for transcribing, typing and editing this conversation: Kathleen Flynn, Lonna Gordon, and Lisa Bruce.

By Elizabeth Kaplan

MARINE SANCTUARIES UNDER FIRE

Cow and calf at the humpback whale breeding grounds off Maui, Hawaii. The grounds could become a protected marine sanctuary, if the Marine Sanctuaries Office survives its Congressional challenge. Photo by William Curtsinger, from Wake of the Whale, *© 1979, Friends of the Earth.*

LAST July Representative John Breaux (D-La.) introduced H.R. 5018, a bill to repeal Title III of the Marine Protection, Research, and Sanctuary Act of 1972. Title III is the Marine Sanctuaries Program authorization, and passage of H.R. 5018 would bring to an end the fledgling and beleaguered Marine Sanctuaries Program. Breaux's bill was accompanied by a call for a General Accounting Office (GAO) investigation of the program as well as a Congressional Research Service (CRS) investigation to determine whether the program is even needed. Breaux is looking for an excuse to abolish the program and claims that other laws are sufficient to protect the oceans. Reports from GAO and CRS are still forthcoming.

Until the 1980 fiscal year, the Marine Sanctuaries Program consisted of a staff funded by money reprogrammed within the National Oceanic and Atmospheric Administration (NOAA) to the grand sum of $500,000. It had never received an appropriation. It is now better funded, but since 1972 only two marine sanctuaries have been designated, the *Monitor* sanctuary, an area one mile in diameter surrounding the wreck of the *USS Monitor* off Cape Hatteras, North Carolina and the Key Largo Coral Reef Marine Sanctuary, a 100 square mile area adjacent to the John Pennekamp Coral State Park in the northern Florida keys. This is not a track record likely to stir the wrath of Congress for obstructionism, and Representative Breaux's attack caught the Administration and the program's supporters by surprise.

The trouble started when the Office of Marine Sanctuaries (OMS) began to give active consideration to a marine sanctuary at the Flower Garden Banks coral reef 100 miles off the coasts of Texas and Louisiana in the Gulf of Mexico. The Flower Garden Banks also happen to lie in the middle of an Outer Continental Shelf (OCS) oil and gas leasing area. Breaux made clear his opposition to a sanctuary in the area, but the OMS held firm in its belief that it was a unique biological area, fitting the criteria established in the law perfectly, and deserving of protection. The agency proceeded with the designation process.

FLOWER GARDENS has been described by one marine biologist as "the most critical area for conservation in US waters." Of the few coral reefs in US waters, it is the most pristine and biologically abundant and the least damaged from the effects of human activity. In its draft environmental impact statement (EIS), the OMS proposed a very conservative sanctuary, suggesting a no-activity zone only slightly greater than the Bureau of Land Management's own protective zone around the coral heads in its lease sale stipulations. Environmentalists, when commenting on the draft EIS, were extremely critical of the proposed sanctuary for not sufficiently protecting the reef. The attack from the other side was even stronger, however, and triggered Breaux to call in the GAO and CRS to investigate the program.

There is little likelihood that the Breaux bill will pass because jurisdiction over the act is shared with Representative Gerry Studds' (D-Mass.) Oceanography Subcommittee, and Studds has been a longtime supporter of the program. Breaux will use his bill, however—and if possible the investigations—to attack the reauthorization on the floor where he could win weakening amendments. The reauthorization was already weakened on the House side this year when it came out of committee with a provision for a two-house veto of marine sanctuary designations.

One of the issues plaguing the program is uncertainty as to its mandate. It wasn't until 1979 that NOAA finally established procedures for evaluating candidates for designation. The legislation gives very clear authority to NOAA to promulgate whatever regulations are necessary to protect the key resources of a sanctuary area. But NOAA has been floundering in uncertainty as to how to translate the legislative mandate into a feasible program. Early inquiries in Florida, Alaska, and elsewhere met stiff state opposition to any additional federal regulatory program in state waters as well as strong opposition from fishing interests.

The Flower Gardens coral reef proposal, however, does not conflict with commercial fishermen, protects an extraordinary ecosystem of tremendous biological importance and is some 100 miles from state waters. Deletion of a few tracts and a moratorium on the leasing of a dozen other tracts in the area did not seem like an unreasonable requirement. No one expected the extent of Representative Breaux's opposition. It is expected that the OMS will put out the final sanctuary designation soon, and that it will be even weaker than that proposed in the draft EIS.

NOAA's Timidity A Serious Problem

ENVIRONMENTAL groups have been encouraging NOAA to dare to designate sanctuaries in areas that are threatened by human activity. There is little benefit from a sanctuary over an ocean resource that is not at risk. In late 1977 Friends of the Earth and Trustees for Alaska submitted a well-researched proposal for a sanctuary in the Beaufort Sea off the north slope of Alaska, where the last of the world's bowhead whales annually migrate and whose shores are one of the most important arctic nesting sites for migratory birds. The Beaufort Sea was scheduled for oil and gas leasing in 1979 and its wildlife was in need of protection. After an initial flurry of interest, NOAA backed off pursuit of a Beaufort sanctuary as too politically hot. Instead it went forward with three sanctuary areas in California, and FOE ended up in court on the Beaufort Sea lease sale (NMA, January 1980).

The California sites are all in or near OCS lease areas, but a critical difference was strong support from the public in California and considerable official state support. The three areas are the waters around the Santa Barbara Channel Islands, the Farallon Islands and Point Reyes, and Monterey Bay. The county of Santa Barbara, for instance, has proposed a larger and more protective sanctuary than NOAA is recommending. Commercial fishing interests have been objecting to the California sanctuaries, and NOAA has avoided a head-on collision by pretty much exempting commercial fishing from regulation in the sanctuaries.

The question remains for the California sanctuary proposals, as for the Flower Garden Banks, whether or not NOAA will provide sufficient protective regulations and boundaries to make the sanctuaries meaningful. NOAA has apparently been encouraging the county of Santa Barbara to back away from its proposal to include the entire Santa Barbara Channel in a sanctuary because of NOAA's fears of opposition from the powerful shipping interests. FOE and other groups are waiting to see whether such pressures will translate into insufficient protection when the sanctuaries are designated.

Other sanctuary proposals actively being pursued by NOAA include Looe Key coral reef off the Florida coast, which has strong state support but opposition from the fishing community; Gray's reef off the coast of Georgia and one in the Virgin Islands. At long last the Marine Sanctuaries Office has started the process moving to bring the humpback whale breeding grounds at Maui onto the active candidate list for sanctuary consideration. Despite the strongest public support for the Maui site of any proposed site, NOAA has not pursued a sanctuary there because of opposition from county officials.

AS THE five year OCS leasing schedule nears finalization, we are going to see large numbers of critical ocean areas threatened by energy development. There is only one program which can set aside unique and threatened ocean areas as the national park system does on land. That is the Marine Sanctuary Program. program.

NOAA, however, is a mere stripling in the inevitable interagency combat that occurs when mandates conflict. NOAA's backing off a sanctuary designation for Georges Bank (NMA, November 1979) after it had given strong indication to the fishing community and environmentalists that it would go forward with a sanctuary there, its refusal to pursue designation in the Beaufort Sea, its timidity in the face of Breaux's opposition to protecting the magnificent Flower Garden Banks, are all indicative of the Department of the Interior's clout with the White House and the prevailing mood of hysterical determination to get the oil out and the consequences be damned.

Public Support Needed

THE Marine Sanctuary Program desperately needs public support. Unlike parks and wilderness, the ocean has not generated a strong, organized constituency. Few members of Congress are aware of the program, and only a handful have expressed support and interest. State officials and commercial fishing and shipping interests need to understand that a sanctuary can be compatible with their needs. The beauty and bounty of the oceans are not as accessible to us as the pleasures of the mountains, and we have not yet fully acknowledged the importance of the ocean as a great life-source for all terrestial creatures. As with wilderness, it is not indestructible, and its riches are not inexhaustible. A strong sanctuary program is an important mechanism for protecting those special areas at risk. Without stronger public support for the Marine Sanctuary Program, the tragedy of Georges Bank will be repeated elsewhere.

California and Alaska will be the next battlegrounds for the fate of our off-shore waters. All three California proposals will probably be acted upon during 1980. As the Alaskan lands issue struggles toward settlement, a new battle is shaping over the fate of Alaska's coastal waters (NMA, January 1980). NOAA is not considering any waters off Alaska for a sanctuary at this time despite the fact that several areas of Alaska are among the most abundant in fish, wildlife, and marine mammals of any US waters and the most severely threatened by future OCS exploration. Opposition from Alaska's congressional delegation and state government have prevented active candidates from emerging there. If the battle to save Alaska's wilderness is won, let's hope it is not at the cost of Alaska's magnificent coast.

***What You Can Do:** Write your Senators and Representative and let them know what you think of the current threats to our marine heritage. Make sure they are aware of the serious challenge to our already-weakened Marine Sanctuaries Program. Urge them to oppose any efforts to abolish or weaken the program. □

Preparing Your Arguments

This article, excerpted from George Alderson's book, How to Influence Congress, *tells how to prepare arguments for your point of view and use them effectively to influence your legislator.*

by George Alderson

WITHOUT good arguments your cause is dead. You need arguments to win the help and influence of other citizens, and you need arguments to influence your congressman.

In a legislative campaign, an argument is simply a reason why legislators should vote a certain way. Arguments are not necessarily the greatest determinant of a legislator's vote. A congressman may decide to do as you ask simply because you and your co-workers have built political support in his district for your cause. Yet even when he supports you for such political reasons, the congressman needs the arguments to justify his decision. He needs to justify it to himself, so he can feel comfortable with it. He also needs to justify the decision to the public if he is challenged by your opponents or by a rival candidate in the next election.

An argument must be logical, but it can also appeal to emotion. The logical content should predominate. An overemphasis on emotion runs the risk of alienating legislators and turning off many citizens who will feel patronized or demeaned by a purely emotional argument. People are generally flattered to be approached with a logical argument.

The combination of logical and emotional content was shown in the campaign against the SST subsidy. Opponents of the project argued that the government should not spend $1.2 billion to develop an airplane that would be patronized only by wealthy businessmen and the Jet Set. This argument had its logical side (Why spend all that money for a questionable purpose?) and its emotional side (an appeal to prejudice against the rich).

When you carry out a legislative campaign you need persuasive arguments, backed up by the most impressive evidence you can get. To meet this central need you'll have to find the information and put it in a form that will enlighten and inspire people. On many issues you'll be able to get the arguments and background information from national organizations that are active on the subject. Then it's your job to recast these arguments in terms that will mean something to your community. For instance, if you're working for an increase in federal aid to public libraries, you can get national arguments from the American Library Association, but then you'll have to find out how the increase would help your local libraries, because this is what will mean the most to your congressman.

Information itself is not an argument. Congress often deals with subjects on which there is plenty of information, none of it presented effectively in the form of persuasive arguments. In a campaign for an air-pollution control bill you might have a four-foot stack of scientific reports on the health effects and property damage caused by air pollution, but all this information won't do your cause any good in that form. No congressman or senator is going to read those reports, and few will even know they exist. The information must be put into arguments.

Kinds of Arguments

There are basically four kinds of arguments used in legislative issues:

- *Social good:* how your proposal will enhance people's lives
- *Economics:* how your proposal will make (or save) money, make more jobs, or stimulate more business
- *Ethics:* how your proposal is morally right and the opposing position is wrong
- *Science and technology:* an assertion that certain facts are true or a prediction of what will happen

A fifth kind of argument is often used in connection with the Senate's consideration of the President's nominees to federal judgeships, Administration posts, and regulatory commissions—the *personal argument,* concerning how a person is or is not qualified for the job.

To support the arguments, three kinds of evidence can be used:

- *Uncontestable facts:* those your opponents won't challenge
- *Contestable facts:* those you'll have to defend
- *Opinions:* the predictions or recommendations of experts and respected people

Preparing Your Arguments

The first step is to make an inventory of your arguments. Include every reason you can think of in support of your position. Then decide which of these arguments will be most persuasive to your senators and congressman and to the people in your community whose help you will need to influence these legislators—the public at large, active citizen groups, local politicians, local government agencies, local news media, locally respected citizens, and so on. Having chosen the most usable arguments, you'll be able to concentrate on preparing these thoroughly, giving less attention to the less usable arguments.

The entire inventory should be made not by you alone, but by your core leadership group, because it concerns the arguments all your leaders will rely on during the campaign. If the leaders have contributed to this basic preparation, they will have a stronger commitment to the campaign that follows. Besides, they may offer effective new ideas or different perpsectives.

After inventorying your arguments, proceed to inventory your *opponents'* arguments. Here again, consider which of these opposition arguments will be most influential on your legislators and on your opponents' cobelievers in the community. Then take stock of your responses to these arguments—how can you refute them or defuse them?

Don't neglect to think over how your opponents will respond to your arguments. If they have a strong rebuttal of your best argument, you'll need to prepare a strong rebuttal of *their* rebuttal.

As you review the arguments, consider how good the evidence is for each argument. If you have believable and authoritative evidence for an argument, chances are it will be taken seriously; if you don't, it won't. However, you can build up evidence by putting people to work researching the subject.

The argument inventory is a planning tool, showing you:

- Which of your arguments are not refutable
- Which of your opponents' rebuttals need a prepared rebuttal
- Which of your arguments rest on slender or unimpressive evidence and therefore need further work
- Which of your opponents' arguments rest on slender or unimpressive evidence and therefore are vulnerable.

Also review your argument inventory to see whether you have arguments in all four categories—social good, economics, ethics, and science and technology. If not, you may be missing a chance to broaden your appeal and thus gain more support.

Dredge deep for good arguments. Citizen groups often base their campaigns on a few shallow arguments, and they run into trouble when the heat is on. Opponents will use their superior staff and money to try to defuse each of your arguments, and they will probably succeed in defusing some of them. By having plenty of arguments early in the campaign, you can afford to lose some.

Review the arguments to see if you have made a strong case that the issue affects your congressional district and state. Local-impact arguments are among the most effective when you're dealing with members of Congress, so don't neglect this subject if you can possibly make a good argument.

Support for Your Arguments

As part of your inventory process, draw up a list of your potential sources of support, and indicate which arguments will be needed to bring them into action.

After preparing this list, based on your knowledge of

ILLUSTRATION BY BILL OETINGER.

potential supporters, look at the subject the other way round, to discover new sources of support that you hadn't thought of before. Go through your arguments, asking yourself, "Who in our community would be concerned about this argument?"

Propose an Alternative

When your objective is to defeat something, such as a dam or a wrongheaded government policy, make one of your arguments the advocacy of an alternative. If you can avoid it, don't let your opponents paint you as irresponsible "aginners," because that can damage the credibility of all your arguments and may deprive you of community support you need in your campaign.

Many, many people who share your views will hesitate to join in a campaign that is purely against something. People will say, "They're just too negative!" The attitude seems to be that being against things is immature, irresponsible, and unrespectable. Remove this obstacle by advocating an alternative, and you'll open the door to all those who distrust "negativism" but otherwise would love to help.

A good alternative is simply your answer to the question, "What should we do instead?" An alternative should not be a compromise; it should be what you really favor, presented so it looks at least as attractive as what you oppose.

The Congressional Viewpoint

One of the most important results of your argument inventory will be the selection of arguments that will be most persuasive to your congressman and senators. You can make some good guesses, based on what you know of their past performance, and you'll learn more as the campaign progresses through your conversations with the legislators themselves, with their staffers, and with local politicians who know them.

You may find that your three legislators are interested in completely different aspects of your issue. Perhaps your congresswoman will be most influenced by economic arguments, one of your senators by arguments concerning social benefits, and the other senator by ethical arguments. In this case, you'll have to include all three types of argument in your grass-roots campaign—indeed, diverse arguments will attract wider support among the public—but stress different arguments when you meet with the legislators or arrange for the local VIPs to call on them.

Whatever arguments you use may reach the congresswoman's eyes or ears, so avoid using any argument that will poison her attitude toward your case.

Debunking the Opposition

Just as important as having good arguments for your position is being able to refute your opponents' arguments. You need a good rebuttal not only for the legislators you're trying to influence, but for news media, local politicians, and even your own supporters. If your most committed volunteers keep getting asked by their friends, "How can you support a bill that would put 150,000 people out of work?" they will need to have a good answer, or you'll lose them.

There are several ways to handle opposition arguments:

1. *Challenge the evidence the argument is based on.* Never trust your opponents' facts. Go through them with a fine-toothed comb, looking for errors, misstatements, and faulty assumptions. Numerical data may have been based on faulty sampling or have been extrapolated from similar situations elsewhere. Get your experts to analyze opponents' facts and figures and shoot holes in them, if possible.

For example, in the campaign against the SST subsidy, the proponents of the SST claimed that 150,000 jobs were at stake. But when economists looked into this figure at the request of anti-SST groups, they found that only 20,000 workers were actually to be employed in the prototype program then at issue. SST proponents had taken a blue-sky figure of 50,000 workers that might be employed if enough SST aircraft were eventually ordered by the airlines, and had multiplied that figure by three, a standard multiplier reflecting general community services such as grocery stores, barbers, and taxi drivers patronized by the 50,000 workers.

In responding to your opponents' arguments, strive to give your senators and congressman an alternative, equally authoritative source of information and expert advice, so they can justify turning their backs on the information and advice your opponents have given them. Scientists, technicians, and other experts can serve this purpose, and so can government agencies—local, regional, state, or federal.

2. *Challenge the assumptions your opponents' argument is based on.* Suppose you're working against a proposed dam which your opponents argue is needed to prevent floods from causing loss of life and property. If you can't disprove your opponents' figures on past losses of life and property (challenging their evidence), you may be able to challenge the assumption that the dam is the only way to prevent these losses. You might challenge the assumption that this advantage is worth the multimillion-dollar cost of the dam. You might also challenge the assumption that the dam will really prevent the losses. Assumptions can be the most vulnerable spots in an argument, because they are supposed to be accepted without question.

3. *Challenge your opponents' choice of priorities.* This is a way of dealing with opponents' arguments for which you don't have a strong rebuttal; it's a matter of making their arguments seem less important than yours. If you're fighting for a bill to control air pollution and your opponents claim it would work a hardship on the big auto companies, you might accuse them of being more concerned about General Motors' profits than about the health of the millions of people harmed every year by air pollution. Or, to strike a more positive note, you could stress throughout your campaign, "People before profits!"

4. *Challenge the argument head-on.* Especially useful in answering ethical arguments, which are not based on a showing of evidence, this response usually consists of strongly asserting a rival argument. For instance, in the controversy over abortion, the anti-abortion groups' ethical argument summed up by the slogan, "Right to Life" has been challenged by those who advocate legal abortion with the argument that women have a "Right to Choose."

5. *Look for inconsistencies in your opponents' arguments.* Citizens fighting against electric power projects many times gained ground by pointing out that at the same time the power companies are arguing that they needed more power plants and dams, the same companies were spending millions to drum up new customers in the form of "all-electric-homes" and energy-using industries; apparently the new power projects were not as necessary as had been claimed. (Only in the mid-1970s, when the energy shortage became a national concern, did the power companies stop this kind of advertising.)

6. *Challenge your opponents' interests or motives.* You may be able to undermine some of your opponents' arguments by showing that your opponents have an unworthy reason for their position, a reason that is not stated in their public arguments. For instance, in fights over proposed freeways it was discovered that many of the influential proponents had quietly bought land along the projected route, expecting to sell it to the highway department for a larger profit. Exposure of such motives has helped to stop many highway and dam projects.

However, don't challenge your opponents' interests or motives unless you have good evidence for the charge. Unfounded accusations will damage your credibility, detract from the respectability of your cause, and could even be libelous.

Legislators and Their Staffs

You should also take the time to learn about your congressman and senators and their staffs. This will tell you a lot about their stances on other subjects, and from what background they view your issue. When you know the issues your congressman most strongly supports, you may think of a way to tie your cause to one of them. For instance, if you're campaigning for an increase in funds for family-planning programs and you discover that your congressman has been outraged at the high cost of the welfare program, you may decide to stress the argument that increased family planning will greatly reduce the welfare costs resulting from too many unwanted children.

To find out about your legislators' past record in Congress, use these sources:

- *The Almanac of American Politics* contains an overview of each legislator's record, a table of his votes on key issues, and a summary of how he was rated by specialized citizen groups.
- *Congressional Quarterly Almanac,* issued annually, contains an analysis and voting record for each major issue Congress acted on during the year.
- Your local newspaper's clipping file will cover your legislators' pronouncements and involvement in local affairs over a span of many years.

Senator's and congressmen's biographies (the way *they* want them to appear) are printed in the Congressional Directory. To get a more critical view of your congressman, consider interviewing the candidate who ran against him in the last election. Political reporters with local newspapers or television stations may also give you useful information. Official records of the legislators' finances may also prove informative. But be cautious in researching legislators' finances and personal backgrounds. They may hear about your inquiries from congressional employees eager to curry favor. This is even more likely if you are looking into their landholdings or court records at the county courthouse, because old courthouse employees have solid political ties. If you don't want legislators to know that your group is looking into their background, get someone to do this research who is not yet publicly associated with your group.

Presenting Your Arguments

You'll need to use two different approaches in presenting your arguments because you have two quite different audiences—on the one hand, your senators and congressman, on the other hand, your public supporters and those you hope to enlist in the campaign.

Your popular supporters will respond best to an argument presented dramatically, stressing the rightness and fairness of your proposal, as contrasted with the wrongness and unfairness of the opposite position. Evidence that symbolizes the issue can be important. In the fight to save the redwoods, contrasting pictures of intact redwood trees and pictures of logged-off redwood forests became the public image of the issue. In a fight for hospital construction funds, pictures of overcrowded hospital wards and admitting rooms might serve the same purpose. However, this symbolic evidence is only part of your presentation. You have to get the arguments out to your supporters, with enough background facts to make them usable.

Legislators like to think they consider the facts dispassionately and reach decisions on the facts alone. Actually, they are usually influenced more strongly by political pressure of the kind you can generate than they are by the arguments. But because legislators have this notion of calm, unbiased decision making, it's important to cater to it, primarily through your group's direct contacts with legislators—visits, letters, telephone calls—as opposed to contacts by individual citizens. Flatter the congressman by giving him a fact sheet on the issue that presents the arguments, with good evidence to back them up. The fact sheet should not be cast in terms of right or wrong or be emotional; your strong commitment and feelings will be clear from what you tell him in person. By leaving your passion out of the fact sheet, you will make it easier for the congressman and his staff to read your arguments without having to mentally edit out your value judgments. You want him to see that he can rationally justify his vote to himself and his constituents if he's ever challenged on it.

Every citizen group has a right to express its feelings on an issue. Citizens have emotions about issues, and these emotions are a tremendous political force because they are what motivate people to take action on legislative issues. Legislators also have emotions about issues. Indeed, you want your senators and congressman to share your emotional commitment to your issue, so they won't jump ship when your opponents put on the heat. But when you are in the touchy situation of asking a legislator to support your cause and he has not yet agreed to do so, just set your emotions aside for a few minutes—long enough to show him that your arguments can stand on their own, without emotion to prop them up. □

The Nuclear Blowdown

Study Finds Energy Efficiency The "Least-Cost" Solution

A recent report by the conservative Carnegie-Mellon Energy Productivity Institute concludes that if it weren't for government interference in energy pricing and regulation we would be using 24 percent less energy than we do, and paying almost $200 less per year each for energy services. Titled "The Least-Cost Energy Strategy," the report concludes that the major waste is in centrally generated electricity, where we could be using 43 percent less if cost-effective conservation and industrial power generation had been implemented properly.

In fact, the report suggests that our problems in 1978 could have been very much less serious than they were. A 1978 economy that was "optimally designed" for 1978 energy prices would have used, according to the analysis, 28 percent less oil than was actually used, 34 percent less coal, and 43 percent less centrally generated electricity. "Theoretically," writes the lead author Roger Sant, "a least-cost strategy applied during the 10 to 12 years prior to 1978 could have reduced the cost of energy services by roughly 17 percent in 1978 with no curtailment of services."

Over-regulation and under-pricing are at the root of our energy problems, according to the group. "We have concluded," writes Sant, "that implementation of a least-cost strategy would utilize much of the traditional free market system. . . .Our conclusion about the value of market forces in the operation of a least-cost strategy arises from the evidence of our analysis that, in regard to most of our energy problems, a freely competitive environment would work, primarily because of the numerous, diverse, and actually or potentially competitive technologies that can be brought into play in the energy economy."

Formerly a vice-president of Saga Foods, Sant joined the Federal Energy Administration in 1973 as Assistant Administrator for Conservation, to the consternation of many environmentalists. Sant later resigned over the unwillingness of the Ford Administration to push conservative efforts.

The Sant report stresses the concept of energy services in language that could be Amory Lovins's: "The resolution of the energy problem might be achieved through what can be called the 'least-cost strategy,' a strategy that concentrates on the ultimate goal of providing industrial and individual consumers with all the heat, light, and mechanical motion—the end results of energy use—that they require, or even want, at the least possible cost."

To encourage competition between energy sources and conservation techniques, the Sant report urges deregulation of the oil, gas, and electric industries, except for pipelines and transmission systems, which could be "common carriers." In particular, the report cites four cases of "over-regulation" that worked to the detriment of a "least-cost" conservation based strategy.

"Heavy government research and development emphasis has been focused on increasing utility supplied electricity, despite the fact that in straight cost competition electricity consumption would have decreased.

"Regulations have forced industrial conversion to coal, as a means of reducing oil imports, despite the fact that at 1978 fuel prices our analysis shows that it was not in the industrial users' economic interest to do so.

"The most cost-effective opportunity to reduce oil consumption is in the building sector, yet government programs have focused on the transportation and industrial sectors.

$400 billion in unneeded power plants and oil imports could have been saved.

"Controlled, artificially low prices for natural gas have created excess demand; this has resulted in over-use in the building sector because of assured supply to high priority customers and under-use in the industrial sector because the supply was not available. The Natural Gas Policy Act has increased that distortion by passing on the price of higher-cost gas to industry only, thereby encouraging continued over-use in buildings."

And, finally, "The present popularity of a massive government program to produce synthetic fuels well beyond the testing of commercial feasibility is a further example of the propensity of legislators to enact measures that work against achieving the least-cost objective."

The 50-page summary does not do justice to the detailed calculations of cost-effectiveness in each of the principal energy using sectors: buildings, transportation, and industry. Nearly one-fourth of the savings in their hypothetical least-cost 1978 economy come from improvements in residential buildings. A seventh of the savings come from automobile weight reduction and power-train improvement. And a tenth comes from better air conditioning equipment in large commercial buildings. All the other factors: 15 or 20 small economic adjustments to higher prices yield the total savings. Conservation is not monopolistic, but small and diverse, though additive.

Interestingly, the Sant report carefully estimates costs for each improvement. The total capital cost of the package of improvements, all of which increase national productivity, is calculated at $364 billion. This appears to be a considerable sum, but the amount of energy saved is also considerable, nearly a fourth of total US energy supply (19.3 quads). The average cost of these energy savings, then, is less than $12 per equivalent barrel of oil. Had the investments been made, the Sant group calculates that over $400 billion would have been saved in unnecessary power plants and petroleum imports.

The report concludes on an upbeat note: "A wave of optimism—and commitment—is beginning to emerge from many quarters: these changes are possible, desirable, and necessary. Perspectives have and will continue to change rapidly. When coupled with ingenuity, new technology, and improved management, these changes can be powerful enough to master the energy problem. In fact, seen in this perspective, the problem is transformed into an opportunity—increased employment, new markets, an enhanced environment, a more secure energy future, and most important, less onerous levels of energy service costs. We are definitely not stuck with our old attitudes about energy and energy conservation. Our analysis to date shows that we can move to higher levels of productivity through a more competitive, consumer-oriented energy policy."

It is useful to see energy conservation presented in a way that appeals to a new constituency (in this case, Milton Friedman and friends) and the Sant report does that. But the overall impression, that one can create a "least-cost" result through deregulation and higher prices, is deceptive. Cogeneration can be stimulated by deregulating the generation of electric power, or by setting rates for purchased power that are equal to the cost of new supplies. (California's Public Utilities Commission is urging cogeneration rates at 90 percent of new supply cost.) Energy-efficient automobiles take considerable time to develop, and tight mileage standards have been an essential component.

There are equity questions as well. High energy prices don't encourage renters to insulate their apartments, they just make them poorer. And in sectors where consumer demand outpaces supply, as in new homes, people take what they can get and builders build what builders want. The marginal cost of new home improvements can be as low as $1,200 to save two-thirds of the heating cost, with a probable payback of several years, and efficient houses sell but there aren't enough of them.

If something already cost-effective at today's prices is not being done, will doubling the cost of energy make it happen? Possibly, but doubtful.

Source: Roger W. Sant, et al., "The Least-Cost Energy Strategy," The Energy Productivity Center, 1925 N. Lynn St. #1200, Arlington, Virginia 22209 ($5).

Marcos Halts Construction On Philippines Reactor

Urging fundamental changes in the design and safeguards of the 20 percent complete Bataan reactor, Philippine President Ferdinand Marcos halted work on the 620-megawatt Westinghouse project. Sited along an active earthquake fault and on the side of an active volcano, the $1.1 billion project has received the largest single development loan from the US Export-Import Bank. Grave concerns about its design were raised by Philippine nuclear opponents, leading eventually to a study by a special team of the International Atomic Energy Agency. Their secret report, leaked in early 1979, raised similar concerns about the plant's ability to withstand major earthquakes and ash falls from volcano eruptions.

Marco's announcement that "it is not possible to continue" the Bataan project unless Westinghouse "introduces fundamental changes" comes as a result of recommendations from a Philippine equivalent of the Three Mile Island commission. Reporting on the implications of that accident for the Philippines, the commission urged: "It is to the best interest of our country and people that the project continue only if Westinghouse agrees to renegotiate its contract." Marcos also announced that the Philippine government would seek a moratorium on payment of interest costs to finance the project, currently totalling $127,000 per day. Westinghouse, noted a government announcement, "has failed to comply with its obligations under its contract with the Philippine government" in failing to secure permission from the US NRC to export the plant to the Philippines.

Meanwhile, the US State Department has completed preparation of its procedures for assessing the environmental impact of nuclear power plants exported to foreign nations. At the same time the NRC has asked for comments on whether it should have jurisdiction for assessing the safety and environmental effects of exported plants, setting the stage for a substantial jurisdictional battle. The State Department, in a 31-page environmental review submitted September 28, 1979, has already urged the NRC issue an export license. "It is the judgment of the executive branch," noted the memorandum, "that the proposed export will not be inimical to the common defense and security, and that the license should be issued." The State Department takes the position that "in the area of site safety, this is the primary responsibility of the recipient government. Whatever concerns we have, we have passed them on to the Philippine government."

The Nuclear Regulatory Commission is currently considering the proposed export license, and the broader issue of its jurisdiction over the health and safety risks posed by exported US nuclear products. Leading the campaign to force NRC to take a broad look at exported reactors are the Center for Development Policy, a Washington-based public interest organization, and Representative Clarence Long (D-Md.), an economist Member of Congress who has long made the issue his interest. The NRC's ruling on the Philippines' case and on broader jurisdictional issues will probably be postponed to late January.

But the State Department's procedures, if they supersede the NRC's, offer little hope to concerned internationalists. Interested parties must respond within 20 days to the State Department's environmental report on a proposed export. The report itself must be started and completed within 80 days. If it is determined by the Department that a proposed project would proceed without US financing on exported equipment, then no environmental report need be prepared. An industry source contacted by *Nucleonics Week* commented that the procedures "provide flexibility in compliance to appropriately reflect diplomatic, international commercial, competitive, and export factors, as well as the needs for governmental and commercial confidentiality." This "flexibility," added the industry attorney, should enable the Department "and the exporter to. . .gather available information without leading the foreign country to believe its sovereignty has been infringed upon." Or that any useful information is gathered, any exports are halted, or any gross errors like those that permitted Pakistan to buy nuclear weapons components from the United States (under the guise of operating a textile mill) are avoided before it is too late.

Sources: *Nucleonics Week,* November 15, 29, and October 25, 1979.

NRC Report Urges Moratorium on Construction

An early draft of the Nuclear Regulatory Commission's (NRC) special inquiry group on the potential hazards of the Three Mile Island accident, headed by Washington, DC attorney Mitchell Rogovin, reveals a much more serious risk than previous government estimates have, including those in the Kemeny report. The draft report also urges changes at the Nuclear Regulatory Commission including:

- a moratorium on construction permits for new reactors until recommended changes are implemented;
- major improvements in the NRC's Office of Inspection and Enforcement;
- intervenor funding;
- a one-step licensing process for standardized reactor designs;
- strict emergency evacuation plans for existing reactors and detailed remote siting criteria for new units.

A final draft of the report will be released by the end of January.

In the introduction to the draft report, the Rogovin group arrived at a different conclusion about Three Mile Island's potential risks than prior NRC or Kemeny Commission conclusions. Had a shift foreman failed to block off the stuck open pressurizer relief valve at two hours and 22 minutes into the accident "to see if that would help the situation," projections "show that within 30 to 60 minutes a substantial amount of the reactor's core would have begun to melt down—with uncertain but potentially disastrous consequences."

The Rogovin draft report urges the NRC to create an office of public assistance to aid intervenors who might make significant contributions to the licensing process.

A major overhaul of the NRC's Office of Inspection and Enforcement is needed so that more attention can be focused on the problems of existing reactors, notes the report. Quantitative risk assessment groups and a new data analysis office that now reports to the executive director could be combined in a strengthened inspection and enforcement unit.

The Rogovin draft urges, much like the Kemeny Commission report, a single NRC administrator. "The central and overwhelming need is for legislative and/or executive reorganization to establish a single chief executive with clear authority to supervise and direct the entire NRC staff."

The strongest and most controversial Rogovin recommendation concerns remote siting and evacuation planning. The report recommends evacuation of persons within 20 to 25 miles of a plant as a "realistic, necessary precautionary measure, even at levels of radioactive release well below previously formulated federal 'protective action guidelines'." The draft also urges that evacuation plans be based on a standard 30-mile radius around existing plants and siting of new plants 25 to 40 miles from population centers. Existing plants that cannot meet this standard, the draft avers, might be forced to shut down.

The Rogovin report argues that a two-step licensing process is unnecessarily cumbersome, recommending a single construction permit proceeding. Also supported in the draft report is a standardized reactor design from each reactor manufacturer. Both of these proposals are consistent with industry recommendations, though the remote siting proposal makes one wonder whether there are enough potential remote sites left to justify standardizing anything.

The Rogovin report does not look carefully at the idea of separating the owner and operator of a reactor, but urges that someone do it. The concept was prompted by Metropolitan Edison's rush to start Three Mile Island-2 before the end of 1978 to gain investment tax credits and rate base benefits for the entire year. The rush to start the TMI reactor threw several operational safety precautions to the wind. The Rogovin report found no evidence that this haste had long term detrimental effects, but did note the fragmentation of safety information in the industry and proposed more consideration of special reactor-running corporations that might sell power to utilities.

Sources: *Nucleonics Week,* January 3, 1980; *New York Times,* December 27, 1979.

ILLUSTRATION BY BILL OETINGER

Waiting for the Oil Bug

Alga ayatollahphobera is a remarkable organism. It secretes a fine emulsion of hydrocarbons that is convertible to high-octane gasoline at $2.50 a barrel. It grows in saltwater, a medium useless for food crops. It forms its hydrocarbons from carbon dioxide, thus helping to retard the worrisome buildup of the gas in the atmosphere. From nothing more than sea, sunlight, and waste gas, the industrious microorganism produces gasoline almost too cheap to meter.

The alga hasn't quite yet been invented, but with every new political crisis in the Middle East you can see it striving harder and harder to materialize. Oil, after all, came about through photosynthesis, plus a little geological history, and photosynthesis is the most logical way to make more. Congress ardently supports all forms of solar energy, biomass in particular, but its gaze is often focused on the near-term future. Ideas for fuel-producing crops are "exotic 21st century concepts," and the Department of Energy is spending far too much on them, Representative Floyd Fithian of Indiana complained to a House subcommittee on 15 November.

But fuel crops may not be as exotic as Fithian believes. There already exists a tree that produces virtually pure diesel fuel and an alga that generates hydrogen gas. These or other plants may one day lead to an economic fuel crop.

Photosynthesis student Melvin Calvin has been a leading proponent of fuel trees ever since he was caught in a gas line during the oil crisis of 1973. The diesel-producing tree, a native of the Brazilian forest, grows only in tropical climates (*Science,* 26 October). Calvin's leading candidate for a fuel crop species is the gopher plant, which makes an emulsion of hydrocarbons that is convertible to a high-grade petroleum fraction at an estimated cost of $40 a barrel.

Miami BG7 represents another possible approach to a fuel crop. It is a blue-green alga that produces hydrogen from sunlight and seawater. Hydrogen has many advantages as a fuel, including the unique cleanliness of a substance that on oxidation forms only water. The alga was discovered, after a deliberate 4-year search, by Akira Matsui of the University of Miami. Other microorganisms that synthesize hydrogen tend to reabsorb the gas, but Miami BG7 is a stable producer. Matsui is now constructing an apparatus for hydrogen production with support from the National Science Foundation. He hopes to attain a solar energy efficiency conversion of 2 percent, which compares favorably with that of many crops.

The new techniques of genetic engineering hold unlimited promise. Might it be possible to design a microorganism in which the energy derived from photosynthesis is used to produce hydrocarbons directly? "Futuristically, it certainly is a very desirable thing to do. I would not say it will never be possible. At this time our lack of knowledge about the genetics of photosynthesis is the major hurdle," notes Anada Chakrabarty, the University of Illinois microbiologist whose application for a patent on a genetically engineered microorganism is now a test case before the U.S. Supreme Court.

Miami BG7 and the gopher plant are both species that would not compete with food crops for resources. The gopher plant grows on arid land, the alga on seawater. That the economics of fuel crops seem at present unfavorable should be no surprise; it has taken thousands of years of cultivation for almost all present crops to attain efficiency. Conventional plant breeding is one potent tool for improving yields; genetic engineering may provide others. Fuel-producing plant crops may be an exotic concept and yet may lie not so far off as the 21st century.

—*Nicholas Wade*

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LETTERS

There's No Life Without Soil

Thank you for bringing public attention on a most critical, if not the most critical, issue of our time, the loss of topsoil and desertification of our planet.

That the area referred to in "Treating Soil Like Dirt" (NMA, December, 1979) happens to be a portion of San Luis Obispo County where I live and ranch not only reaffirms my views that there are misguided ranchers, however sincere, but misguided conservationists in and out of government who abet practices leading to continuation of these destructive processes.

Even among sincere, dedicated conservationists I find an appalling lack of understanding of the essentiallity of topsoil and vegetative protective cover. Many become concerned with aesthetics, cosmetics, and individual species preservation; as is, these cannot continue to exist without the ever-presence of life-sustaining soil.

On the "must-read" list of every world leader, and every worldly citizen should be "The Desert: An Age-old Challenge Grows" from the November 1979 *National Geographic*.

Harold Miossi
San Luis Obispo, California

I want to applaud the short article "Treating Soil Like Dirt" in your December 1979 issue. I find it greatly promising that Friends of the Earth is considering a proposal designed to make the public aware of the need to support programs for the protection of soils against erosion.

I wonder what the FOE proposal is or will be and I urgently hope that it will reflect the findings and views of FOE and not be a rationale exonerating the responsible resource bureaucracy or the equally responsible legislation. No failure of government that I have witnessed in a lifetime in agriculture has been more complete, inexcusable, and irretrievable than the failure of our official soil conservation programs. Notably, the NMA article cited a bulletin published in 1932 which referred to the area of my ranch, "the hill lands of eastern San Luis Obispo County," as then showing "many evidences of erosion." I am well prepared to state that since that evaluation, the depletion has steadily increased with federal conservation subsidies administered more to promote than to prevent the ongoing destruction.

Ian McMillan
Shandon, California

Fluorocarbons and Ozone

Your article "Back in the Ozone" (*Not Man Apart*, December 1979), although basically correct, could be misleading on several issues.

- The National Academy of Sciences study reports an *estimate*, based on *computer modeling*, of the rate of decrease in the ozone. Measurements of the decrease are, at present, inconsistent.
- The discussion of spray cans could lead readers to believe that these sources of fluorocarbons are the only problem; and that if the Europeans would end their use, the destruction of the ozone layer would cease.

Actually, air conditioners, refrigerators, and industrial cleaning solvents are major sources of fluorocarbons and their use is increasing. There are no safe alternatives in refrigeration; poisonous ammonia was used prior to the discovery of fluorocarbons.

I recommend: "The Threat to Ozone is Real, Increasing," *Science*, 206 p. 1167 (7 Dec. 1979) and *The Ozone War;* L. Dotto & H. Schiff, Doubleday, 1978.

Peter L. Smith
Cambridge, Massachusetts

"Progress" in Louisiana

Here in Louisiana we are constantly reminded of the disdain in which our environment is held. The "Endangered Species Act Reauthorized" article in December NMA is one example of this disdain. "Damn the environment, full speed ahead!" is a popular refrain from many of our political officials (i.e. Senator J. Bennett Johnston, Representative J. Breaux, Senator R. Long). Governor Edwards is very fond of pointing out how progressive he is. This brings to my mind the idea expressed in *Progress As If Survival Mattered*. When you come to the edge of a cliff, is progress taking the next step forward?

Louisiana is not alone. Louisiana's politicians are not alone, our public is not an alienated sector. Louisiana is an example in the extreme yet representative of the whole. Our problems are not due *totally* to corporate power or big government, they are due to us collectively. All the "yous" and "mes" must reassess ourselves in relation to the rest of nature. Not in dominance nor in servitude. Rachel Carson stated that all life is in "compartments"; daily I realize how true this is and how full, and/or degraded these compartments are becoming.

An example: Southern Louisiana is a small area approximately 24,000 square miles. For decades this area has belched, burped and discharged oil, gasoline, petrochemicals, coal. It has also produced one of the highest cancer mortality rates in the nation. A common argument is: "Yes, but it has produced wealth too." To me this argument is repugnant, but to many others it is valid. "Wealth for *who?* for *what?*" Do you people outside of Louisiana view our general citizenry with such envy that you are continually banging on our state door? Does our general citizenry enjoy an unusual amount of public services? No, we do not. The majority of the populace here enjoy about the same amount of services as most other states do. However, to even argue the economics is obscene, for economics is not the root, but over the years this economic equation has evolved and has been deliberately propogated.

Louisiana's future includes:

- On-going construction of Waterford 3 Nuclear Plant in South Louisiana;
- On-going construction of Riverbend Nuclear Plant (100 miles from Waterford 3);
- IT Corp. will help build the world's largest hazardous-waste disposal facility in South Louisiana;
- The nation's largest refinery has been proposed by Superport Oil Refineries Corp.;
- Texaco is involved in preliminary engineering to determine the feasibility of a synthetic gas plant;
- The on-going construction of the Superport in the Gulf of Mexico.

Will we ever progress. . .as if survival mattered? Will we "be able to testify that this generation has love for the next?" (David Brower, NMA, September 1979.)

Lane Krause
Pine Grove, Louisiana

Tall Tales on Tallgrass

Dear Senators Dole and Kassebaum [both R-Kansas]:

I disagree with many of the statements in the letter that you sent to the House Interior and Insular Affairs Committee in opposition to H.R. 5592, the proposed Tallgrass Prairie National Reserve bill.

Your incorrect labeling of H.R. 5592 as the Prairie National Reserve bill, with Tallgrass omitted, has enabled you to use the 105,000-acre Cimarron National Grasslands (which you did not state to the Committee as being shortgrass prairie) as an example that "large portions of the Kansas prairie have already been set aside," thus creating the illusion that tallgrass prairie is well preserved. Furthermore, the privately purchased 8,700-acre Konza Prairie and the 2,188-acre Flint Hills Tallgrass Prairie are too small to provide enough ecological niches to ensure the preservation of the 300 plant species which comprise the three upland and three lowland communities of the tallgrass prairie.

Now for a word on the many, contiguous pastures, of which you stated that the ranchers are such excellent stewards. During my extensive botanizing, I have observed that the present stocking rate of cattle in the Flint Hills has greatly changed the plant species composition in these pastures. Ranchers are aware of this because they classify broad-leaf plants as decreasers, increasers, or invaders, according to how they react to grazing. For example, south of Route 56, where drought occurred last summer, the majority of the pastures this year were solid yellow due to an increaser known as broomweed (*Gutierrezia dracunculoides*), which has considerably reduced the forage potential of these pastures. Outside of the pastures, on the roadsides, very little broomweed was to be seen. Clearly, overgrazing has aggravated the broomweed problem. An economics that ignores last year's drought by encouraging continued, heavy grazing is simply imcompatible with good pasture stewardship and with preservation of the tallgrass prairie.

Marty Bender
Salina, Kansas

The Sagebrush Rebellion

I would like to offer you some thoughts on an issue that is bordering on political and social irresponsibility. There is at present a movement among some of our neighboring states concerning control and ownership of federal lands within their boundaries. Popularly referred to as the "Sagebrush Rebellion," this action represents a blatant attack on the future quality of our physical environment.

The presumed point of contention focuses on the right of a state to plan for its future needs. The State of Nevada, which is one of the major forces behind this movement, argues that they gave up a disproportional amount of land upon acceptance into the Union. Unfortunately, the land in question was never theirs to begin with.

In what initially appears as a states rights, anti-federal government action, the end result threatens all. The group that is leading the fight now, the ranchers, are the ones who stand to lose the most in the end. Could ranchers compete in a bidding war with mining and energy interests? Could they compete with investors of Arab oil money?

The majority of the western states lack the necessary financial and administrative base to properly deal with the huge increase in their land inventory if this action were to go through. This being the case, the land would be managed only on the basis of the highest economic return. This is the expressed goal of Senator Hatch of Utah in introducing a bill to give the states jurisdiction over all national forests and BLM lands. In the event of a land sale, the highest bidder would be free to do with the land as he pleases barring any legal covenants, claims or restrictions.

It is my belief that the major thrust behind this movement is coming from industry and land speculators. With the federal government out of the way, the states will be under substantial pressure to develop. All the hard-won battles over preservation and conservation will have been in vain. Any future multiple uses (primarily recreation) will be also lost.

If you think that the proposed Energy Mobilization Board will circumvent the environmental protection laws, think what may happen if those laws are no longer applicable in the first place.

Peter M. Caplan
Denver, Colorado

Have a Heart for the Heartland

First, I would like to thank you many times over for the work you do. My subscription has priority over most other bills that come across this desk. I hate to criticize such a fine publication, but I have to agree with the letter by Keith Storey in November's issue about the lack of coverage in the Midwest, particularly the Great Lakes area, one of the nation's most populous regions.

Michigan, for instance, is in the forefront of the environmental war, but rarely is there a word about what is happening up here. Being the seventh most populous state and one of the most industrialized (General Motors, Dow, etc.), there are tremendous problems here with urban sprawl and its many forms of accompanying destruction. We are leaders in chemical contamination (PBB, Hooker, etc.) and nuclear power (Big Rock is the nation's worst).

I would love to send you an article, as you suggest, but am too busy along with many other fine citizens fighting concrete plans of our highway department. Being the motor state as well as the Great Lake State, our state highway department is prone to excessive paving, to put it mildly. Michigan was the first large industrial state to pass by referendum a bottle return law, and interesting studies have now been completed on its impacts. However, NMA articles tend to deal only with Vermont and Oregon. Currently there is a critical wetlands bill in our legislature that you might be interested in covering, since there are 15,000 inland lakes in Michigan and thousands of acres of Great Lakes marshes. The success of this legislation is very questionable at present.

Wisconsin, Illinois, Indiana, and Ohio are also extremely critical states in the environmental movement. I realize that FOE is an international organization, but please have a heart for the heartland. We need lots of help and encouragement.

Charles K. Poor
Lansing, Michigan

FOE has student groups at Kent State and the University of Wisconsin in Madison; NMA has asked them to contribute news articles to us. —*Ed.*

Anti-Ehrenfeld

It is difficult to respect Dave Ehrenfeld (NMA, December 1979) when he misrepresents his subject so seriously. And to think that NMA could give supporting space to this really makes me wonder—do I belong in this organization?

Douglas Stelling Bergmann
South Orange, New Jersey

Abolish Incentives to Populate

Environmental protection currently is riding on a swell of popular opinion, but the pressures caused by a continued increase in human population might well reverse this trend. In the long range the environment—and wilderness areas in particular—can be protected only through a stabilization and then, hopefully, through a decrease in population.

A political party which wishes to base its appeal on environmental protection must replace the quantity ethic of continued economic and industrial expansion with a slow- or no-growth ethic of economic quality and endurance. It also should seek to repeal those incentives which favor large families. If such a party would advocate one-child families, abolition of income tax deductions for all children, and encourage communities—as through ecological planning grants—to limit housing to replacement construction, it not only would offer a real alternative to the present political spectrum, but offer real hope for the environment as well.

Ronald Gerlich
La Mesa, California

We Need a New Strategy

From the point of view of snail darters, we conservationists have lost the war. It is about this recurrent pattern of little victories capped by final defeat that I am writing you. I hope you will bear with me as I make some observations and suggestions.

I have long been a member of the Friends of the Earth, plus a dozen or so other groups each of which, in its own way, stands and fights against the unthinkable horror of final defeat. Like you, I feel pride in the past accomplishments of Audubon, the Wilderness Society, etc., and joy in the occasional victories that fall our way.

Sober reflection, however, leaves me much less confident of the many organizations and methods now dedicated to halting the ongoing crimes against nature. I see only three that offer a vision of enduring benefits, and even these three have serious drawbacks:

1) The Nature Conservancy and its direct methods of buying small pieces of God's Earth with *money*. The idea that some problems can be solved with money is a good one but, in this case, the money is only a small

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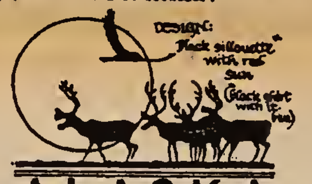

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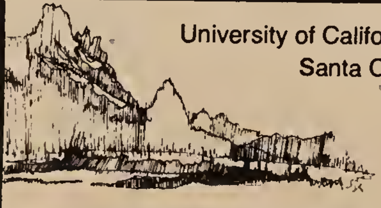

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portion of that acquired by the destroyers of nature. So ten dollars of nature is spent for every penny of it saved.

2) The NRDC and the legal strategy. It is truly gratifying to win a legal victory over a delinquent government agency or a destructive corporation. But these victories, like Tellico and the Pipeline, are reversible. Hopefully, some may endure.

3) The League of Conservation Voters and the *idea* of it. As a conservation idea this is one of the best. Congress is a dangerous foe of conservation and the environment. Though individual members are charming and brilliant, the Congress, collectively, is cowardly, incompetent, and corrupt. So a crusading LCV that could change Congress's ways would be a big help. The drawback is this: Conservationists are people who possess a strong sense of responsibility for the well being of future generations. But in economic history the persistence of a *positive* rate of interest proves that men, generally, *discount the future*. So the conservation ethic is not innate but learned. Conservationists, therefore, are only a minority. The only minority that can sway Congress is the *moneyed* minority, mainly destructive corporations. So the LCV has a very low probability of success.

Thinking along these lines should lead one to the realization that one idea, one effort, has been largely overlooked: the economic one. That our economy is a major destructive force directed against nature, resources, and the environment is readily visible. Unfortunately, an existing institution, no matter how destructive or self-defeating, cannot be reformed or replaced unless there is a known reasonable and superior alternative.

In September 1976, *A New Economy*, was privately published (an immediate drawback since it implied that it can't return an immediate profit.) It had other drawbacks, the worse being that it disclosed several little known but horrifying faults in the present economy (including the destruction of resource capital), then proceeded to lay out, in some detail, practical solutions to these problems. The book was, in the main, an engineering approach to the economic problem. This made the work forbiddingly difficult to review. And yet, by the end of the book there was outlined clearly a self-sustaining economic system *based on conservation*.

A New Economy is scheduled to go out of print in August 1980. The book can be obtained by requesting it from:

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The Design Team Manager will take responsibility for all activities of a nine-person team of architects, engineers and project leaders. This position reports to the Director of OAT. You should have an established commitment to alternative technology implementation, as well as a minimum of 4 years' experience in a related field and demonstrated management talents. Technical skills in engineering or architecture are preferred, but we will also consider individuals with economic or program management skills. An advanced degree and effective written and verbal presentation skills are highly desirable.

Applicants should submit a resume to the **Office of Planning and Research, P.O. Box 160724, Sacramento, CA 95816.** Please submit your resume by **February 15** for the Architect position. Those most qualified will be contacted for an interview by **February 23**. For the Design Team Manager position, submit your resume by **February 22**. Those most qualified will be contacted for an interview by **March 21**. Please indicate the position you are applying for by writing either "Architect" or "Design Team Manager" in the upper right corner of your resume.

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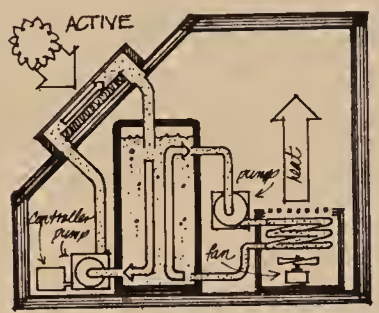

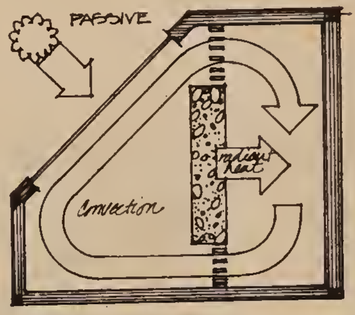

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Defensores de la Madre Tierra

We have here in Mexico City a still very small ecology group called Club Defensores de la Madre Tierra. We've been lecturing in schools, doing some clean-up picnics to the mountains and protesting to our government for its ruinous oil spills in the Gulf of Mexico, etc.

We always wait anxiously for each new issue of *Not Man Apart*. It's been very helpful and always interesting.

Carlos E. Baca
Zona Rosa, Mexico

Memo to the 21st Century

It was like this once: sprinklers mixed
our marigolds with someone else's phlox,
and the sidewalks under maple trees
were lacy with August shade,
and whistles called at eight and fathers walked
to work, and when they blew again,
men in tired blue shirts followed
their shadows home to grass.
That is how it was in Indiana.

Towns fingered out to country once,
where brown-eyed daisies waved a fringe
on orchards
and cattle munched at clover, and
fishermen sat in rowboats and were silent,
and on gravel roads, boys and girls
stopped their cars and felt the moon and
touched,
and the quiet moments ringed and focused
lakes moon flowers.
That is how it was
in Indiana.

But we are moving out now,
scraping the world smooth where apples
blossomed,
paving it over for cars. In the spring
before the clover goes purple,
we mean to scrape the hayfield, and
next year the hickory woods:
we are pushing on, our giant diesels snarling,
and I think of you, the billions of you, wrapped
in your twenty-first century concrete,
and I want to call to you, to let you know
that if you dig down,
down past wires and pipes
and sewers and subways, you will find
a crumbly stuff called earth. Listen:
in Indiana once, things grew in it.

Philip Appleman
Open Doorways
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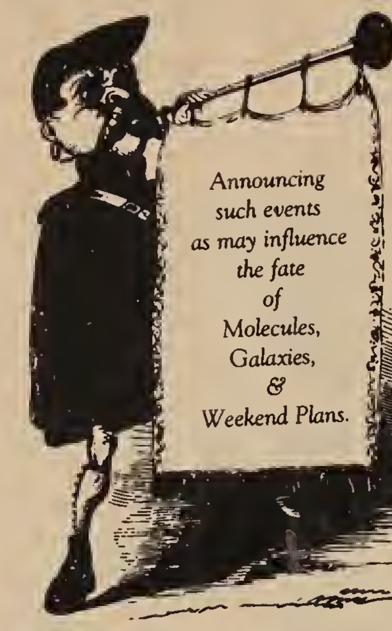

The Northwest Rural Energy Conference will be held February 23-24, 1980, at Gonzaga University in Spokane, Washington. Sponsored by Rural America, the conference will consider energy costs, coal and nuclear development, energy alternatives, and regional policymaking. Registration is $10 for the public, $20 for professionals in the energy field and public agencies. For application forms and more information, write to Cascadian Regional Library, Lane Building, Box 1492, Eugene, Oregon 97440 or call (503) 485-0366.

The Energy Efficient Community Planning Seminar will take place March 13-14, 1980, in Philadelphia, Pennsylvania. How community energy conservation programs developed, why they work, how financing was arranged, and where red tape was cut will be discussed at the seminar. It will be held at the Holiday Inn, City Line, Philadelphia; registration fee is $165. For further details, contact Rill Ann Goldstein, The JG Press, Box 351, Emmaus, Pennsylvania 18049; (215) 967-4010 or 965-5254.

The American Friends Service Committee Resources and Social Order Program is sponsoring an Organizers Workshop for the Anti-Nuclear Movement in Santa Barbara on February 29-March 2, 1980, and in Los Altos Hills on February 22-24, 1980. Workshops on long term goals, planning strategy and activities, how to attract broad support, how to organize a decentralized movement, and many other subjects will be held for people actively involved in the anti-nuclear movement and especially for those interested in becoming organizers. Cost of the weekend workshop is $30. For applications and more information, write to David Hartsough, AFSC, 2160 Lake Street, San Francisco, California 94121 or call (415) 752-7766; or Tony Mitchel, SB-PANP, 312-1 East Soal Street, Santa Barbara, California 93101; (805) 966-4565.

"Harvesting the Sun" is the theme of Bio-Energy '80, a world congress and exposition on bio-energy, to be held in Atlanta, Georgia on April 21-24, 1980. Developments in bio-energy—solar energy stored in plant matter or biomass—will be discussed by participants from all over the world in seminars and addresses; an international exposition of equipment, services, and publications relating to bio-energy will also be featured. Registration fee is $240.00; $200 for those who register by March 14, 1980. For additional information and registration forms, write or call the Bio-Energy Council, Suite 825 A, 1625 Eye Street, NW, Washington, DC 20006; (202) 833-5656.

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WANTED: PROGRAM COORDINATOR—Earthwork, food and land resource center, San Francisco, Ca. Duties: administration, program planning, staff coordination. Administrative *and* political experience necessary. Salary $10,400, benefits. Send resume to Earthwork, 3410 19th St., San Francisco, Ca. 94110.

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not man apart from that...

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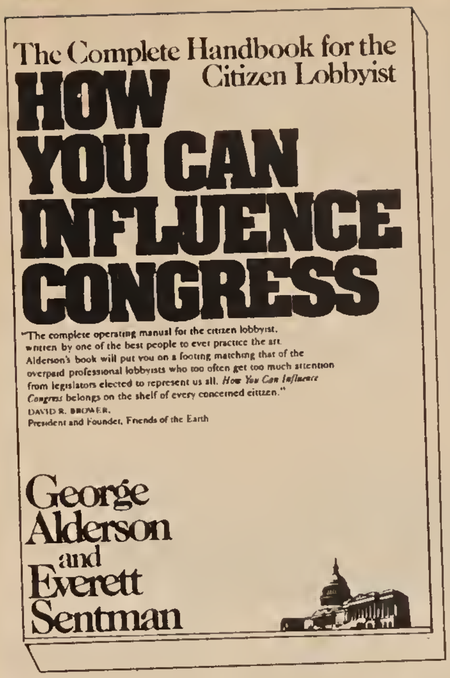

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